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THE FESTIVUS

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PROGRAM

CREATURES OF THE DEEP

Norbert Wu, graduate student at Scripps Institution of Oceanography who shared some of his exquisite underwater photographs with the Club once before, will discuss the evolution of fish and other animals in very deep water.

Besides his calendars which highlight his photography, Mr. Wu was recently invited to present two one-man print shows--one at the Monterey Aquarium and the other at the Lawrence Hall of Science in San Francisco.

Meeting date: 19 January

CONTENTS

CLUB NEWS

FROM THE MINUTES - SAN DIEGO SHELL CLUB MEETING - NOVEMBER 17, 1988

President Bill Romer welcomed members and asked for self introductions of guests. New faces included Michael Hollmann from Germany and Larry MaCurda from the Guam Shell Club who stated that their members are interested in exchanging with our Club.

Carole Hertz introduced speaker Tom Demere of the San Diego Natural History Museum's Paleontology Department who spoke on Pliocene mollusks of San Diego and their relation to Recent mollusks of the area.

Tom Demere's presentation took us back to remote geological times some five million years ago when ocean covered much of what we know as present-day San Diego County. Sharing with his audience some outstanding local marine fossil specimens, Tom traced the evolutionary history of local sea life. His slide presentation explored underlying fossil beds and the sedimentary rocks of the Pliocene Age. In sensational detail, he explained the geologic time scale and the ages of fossil mollusks in San Diego. Following this highly informative program, Tom treated Club members to a close-up examination of marine fossils including a handsome colony of the Pliocene scallop, *Pecten (Patinopecten) healeyi* Arnold.

After the refreshment break with cookies provided by Carole Hertz and Suzanne Mathews, Bill Romer announced final arrangements for the December 3rd Club Christmas party.

President Romer read the slate of officers for 1989. Nominations were then closed and the new officers elected unanimously (see masthead).

A mini-program by Carole Hertz followed and took us on an entertaining tour of the 1988 WSM (Western Society of Malacologists) meeting held at Sonoma State University in July.

Holly Hansen was the winner of the shell drawing and Larry Buck concluded the meeting by giving special recognition to Tony D'Attilio and Carole Hertz for their superb work on their joint project, "An Illustrated Catalogue of the Family Typhidae Cossmann, 1903."

Wayne Reed

NEW MEMBERS

Bishop Museum, 1525 Bernice St., P.O. Box 1900-A, Honolulu, HA 96817-0916
Hollmann, Michael, 14175 Half Moon Bay Dr., Del Mar, CA 92014, 259-6657
Hutsell, Linda, Kim, Jeremy, 1154 12th Ave., San Diego, CA 92101, 232-2842
Skinner, Drew V. Jr., P.O. Box 208, Bremerton, WA 98310
Stewart, Katherine, 19 La Rancheria, Carmel Valley, CA 93924

THE CLUB'S ANNUAL CHRISTMAS PARTY

On Saturday evening December 3rd, members of the San Diego Shell Club dispelled any "humbugs" about the holidays by celebrating in style at the Admiral Kidd Club. The delightful aroma of steaming filet of sole and succulent prime ribs of beef drifted in the glittering atmosphere of the San Diego Room. All of us thoroughly savored the well-deserved frivolity and opportunity to chat with old friends.

The tranquil waterfront view was spiced up with a slide show of vacation and underwater adventures, including pictures of Europe, sharks, and sea lions in kelp beds. Club President Bill Romer, who'll be greatly missed, bid members an affectionate farewell since he will be stationed in Long Beach. Passing the gavel to President-elect Larry Buck, Bill said that Larry will "make a great president," and Larry promised "new and exciting ideas" for the coming year. Thanks were given for a job well done by the 1988 board and hearty applause was given to the officers for 1989.

The evening ended with the traditional Christmas shell exchange, the evening's biggest event, which resulted in the usual "oohs and aahs" as everyone unwrapped the treasures.

Wayne Reed

BIOLOGICAL WARFARE AT THE SEATTLE AQUARIUM

BY

ROLAND C. ANDERSON

The Seattle Aquarium, Pier 59, Waterfront Park, Seattle, Washington 98101

Marine biofouling is defined as the settling of marine organisms from seawater onto an underwater man-made surface and growing there to the detriment in some way of that surface. The marine organisms may settle out of the water column as larvae onto the surface, swim or crawl onto the surface, or be chronically present on the surface. The biofouling may be animals or plants. Barnacles that grow on the bottom of ships are a well-known example of marine biofouling. A large ship may have as much as 300 tons of fouling marine organisms on its hull. Such animals settle there when the ship is in port and are then able to withstand the wash of the water underneath the ship while it is under way. Fouling on a ship's hull will reduce speed, increase fuel consumption by up to 50%, and cause greater wear and tear on the ship's engines. More than a billion dollars is spent annually to control fouling on ships.

While not in the billion dollar class, the Seattle Aquarium expends considerable time, money, and effort to control marine biofouling in the Aquarium's tanks, largely a battle against a ubiquitous brown diatom (*Chaetoceros* sp.) that grows on the inside surface of the glass tanks, which obscures viewing of the exhibit animals and is unsightly on tank walls and backdrops. In smaller aquarium tanks this brown diatom scum yields to typical aquarium cleaning devices such as sponge sticks, brushes and razor scrapers and in larger tanks mechanical scrubbing and chlorination are the primary methods, but chlorine may be harmful to marine mammals and must be neutralized after it is used. In addition, large marine mammals may be difficult to isolate while their tank is being chlorinated, as is the case with 600 pound fur seals.

Until recently some mammal tanks were left uncleaned for long periods of time to avoid contamination and disturbance of the marine mammals. During this time period the mammal biologist noticed some clean patches on the otherwise scum-covered walls. On closer inspection these clean patches were found to be the result of the work of small limpets, which had come in as larvae and settled onto the tank walls. Further experimentation with large herbivores such as abalones, sea urchins and chitons proved that these herbivores would eat the problem diatom but were large enough that the seals were able to pull the animals off the walls and kill them, so the mammal biologist reverted to the limpets. Upon measuring the diatom cover cleared by each limpet (approximately the size of a hand) he determined that it would take approximately 3,000 to 5,000 limpets to keep the walls of the tank clean, so a large effort to collect the limpets began. Both staff and volunteers contributed to this epidemic of "limpet fever" collecting on low tides in the Puget Sound area, on lunch breaks, field trips, and family outings, as well as official collecting trips. Limpets collected and placed on the tank walls were *Tectura scutum, T. persona, Lottia pelta,* and *Acmaea mitra.*

After a year the results of this experimental biocontrol of the diatom scum are impressive (see Figures 1-3). It was found that the tank needed to be drained at least three times a week to keep the limpets alive, since they are intertidal creatures and need a certain exposure time; this experience is also borne out in the limpet tank in my invertebrate area. Unfortunately, this summer a new fur seal pup was born, so the tank was not drained on schedule, and most of the limpets died. The walls again became diatom-covered, but the pup will soon be old enough to begin draining the tank on schedule, and "limpet fever' at the Aquarium will begin once more.

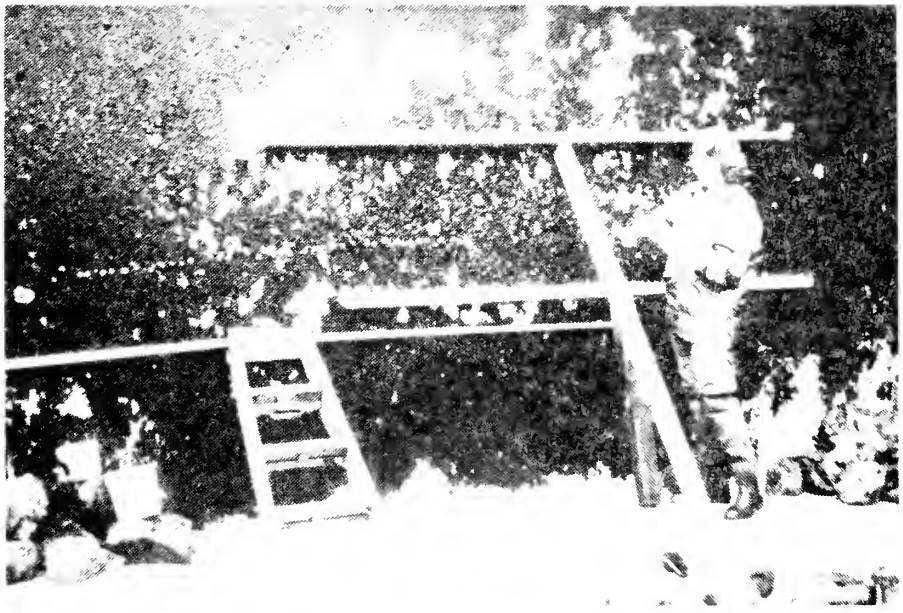

Figure 1. Apparatus for placing the limpets on the tank wall "en masse." Notice the cleaned areas eaten by limpets already there. Today the tank is almost totally cleaned by the limpets.

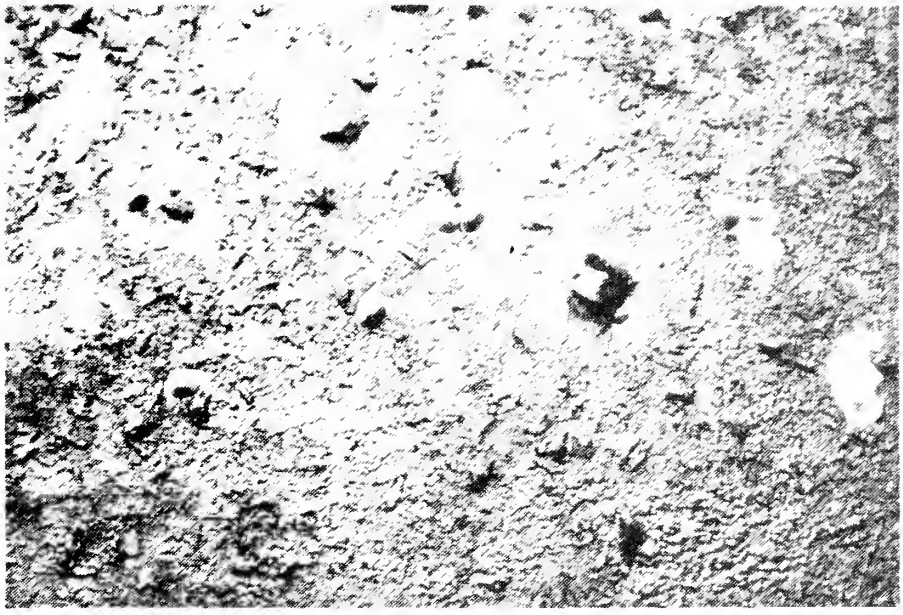

Figure 2. After one day on the tank wall.

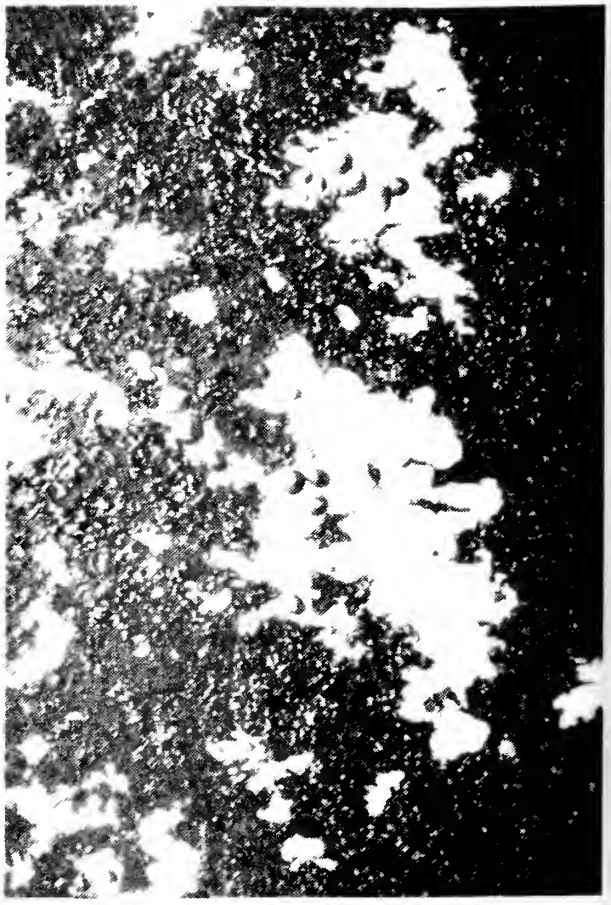

Figure 3. Several days after the limpets were placed on the tank wall.

UNA SEMANA EN LOS ISLAS GALAPAGOS

(A Week In The Galapagos Islands)

BY

DONALD R. SHASKY

834 W. Highland Avenue, Redlands, California 92373

Offshore islands have always been particularly appealing to me, especially those that are far-removed from the mainland. Isolated islands usually have a high degree of endemism in their flora and fauna. I have had the pleasure of being able to collect on many of the offshore islands of the tropical eastern Pacific, but it was not until February of this year that I was able to go the the Galapagos Islands.

After many months of planning and several months of attempting to get collectors' permits, 24 of us found ourselves in Guayaquil, Ecuador on February 13, 1988, where we reconnoitered at the airport for our flight to the Galapagos.

We had come from nine states, Mexico City, and San Jose, Costa Rica. Most of us were old friends from previous dives together at Cocos Island, Costa Rica.

Because of the size of our group, we had to charter two vessels to accommodate us. We divided so that the "shark divers" would be on one boat and the "shell divers" on the other. The shark divers were interested mainly in underwater photography; and, of course, it is obvious what the shell divers were interested in.

Figure 1. (left to right) Kirstie Kaiser, Gene Everson, Jacqueline DeRoy, Don Shasky, and Michel Montoya. Photograph: Kathy McMorran

The Ecuadorian National Park Service had issued permits for only three of us to collect shells: Dr. Michel Montoya of San Jose, Costa Rica; Kirstie Kaiser of Park City, Utah; and me. Arbitrarily, we appointed the other collectors as our "assistants." As "assistants" there were Captain Gene Everson of Louisville, Kentucky; Wayne Harland and his wife of Pompano Beach, Florida; and my wife, Urshi.

Shelling was both good and bad. The water was sometimes frigid. The boat we were on, although only two years old, was badly in need of extensive repairs; our captain should have been a street sweeper. Enough said.

Our shells have not yet all been identified; but, as of now, we have been able to add almost 50 species previously unknown in the Galapagos.

One of the highlights of our trip was the privilege of visiting Jacqueline and Andre DeRoy in their home off of Academy Bay on Santa Cruz Island. The DeRoys have been very important in the development of knowledge of the molluscan fauna of the

Galapagos.

Following our week in the Galapagos, Kirstie and I, along with several of the "shark divers," boarded the Victoria off Karlstad at Baltra Island, bound for Cocos Island.

Pictured in Figure 1 are four members of the San Diego Shell Club with Jacqueline DeRoy.

BOOK REVIEW

A REVISION OF THE INDO-WEST PACIFIC FOSSIL AND RECENT SPECIES OF *MUREX S.S.* AND *HAUSTELLUM* (MOLLUSCA: GASTROPODA: MURICIDAE)
By W.F. Ponder and E.H. Vokes. 1988.
Records of the Australian Museum, Supplement 8, 160 pages, copiously illustrated
Published by: E.J.Brill/Robert Brown & Assoc., Postbus 9000, 2300 PA Leiden, Netherlands
Price: $48.00 seamail

The long awaited appearance of the important treatise on the popular "Venus Comb Murex" has been well worth the wait. The species covered are only those in the Indo-West Pacific (that is excluding the eastern Pacific and the Atlantic, east and west). The well illustrated book is for the collector as well as the serious student and professional taxonomist.

The valid species in this work number 55 and are treated at length with good descriptions, diagnoses and biogeographical data since many of the species have wide distribution.

The species are divided into two main groups under *Murex s.s.*and *Haustellum s.s.*. Under the parameters, or taxonomic scheme adopted by the authors, there are some surprising changes constituting the shifting of species previously known as *Murex s.s* to *Haustellum* and vice versa in some cases. Since protoconchs are indicative only of species values and the radulae have no clear cut distinction in this scheme, one is left with having to accept the authors' conclusions concerning the importance of the characters selected for their generic arrangement. The keys provided are helpful for those curating a collection of considerable size.

The soft parts of a number of species were studied and both described and illustrated in addition to the well done enlarged drawings of the protoconchs. The relatively few fossil species known are taxonomically treated and some speculative conclusions are drawn concerning their phylogenetic ancestral origins.

Ten new species-group taxa are named and the generic treatment is expanded to include a new subgenus in *Murex s.s.*. However, for *Haustellum* the few species with a long history of assignment to this genus are treated as *Haustellum s.s.*. The remaining species, transferred from *Murex*, are simply called *Haustellum*. It would seem that since a subgeneric taxon has been used for one group, the major portion of those species shifted from *Murex* to *Haustellum* might have a subgeneric placement or be referred to as *Haustellum s.l.*, that is *Haustellum* only in the broad sense.

However, do not let this small observation keep you from enjoying this altogether excellent work on the "Venus Comb Murex."

Anthony D'Attilio

AN UPDATE ON THE MOLLUSKS FROM THE GALAPAGOS ISLANDS AS LISTED IN "PRELIMINARY FAUNAL LIST OF THE MARINE MOLLUSKS OF THE GALAPAGOS ISLANDS" BY YVES FINET*

BY

DONALD R. SHASKY

834 West Highland Avenue, Redlands, California 92373

We are indebted to Dr. Yves Finet, who is now with the Geneva Natural History Museum, for his 1985 paper titled "Preliminary Faunal List of the Marine Mollusks of the Galapagos Islands." In this paper he lists 593 verified species of mollusks and 190 species of "doubtful occurrence."

From February 13-20 of this past year, Dr. Michel Montoya, Kirstie Kaiser, and I were granted permission to collect in the Galapagos. We were assisted by Captain Gene Everson and Mr. Wayne Harland.

This report includes two species that Finet has added since 1985 (Finet 1987a and 1987b), adds two species that were in Finet's doubtful occurrence list, one species in the Los Angeles County Museum of Natural History, and species collected by Wayne Harland, Kirstie Kaiser, and me that were not included in Finet's list. I also add one specimen on which there is some controversy. [See discussion under "Omission" for *Murexiella vittata* (Broderip, 1833).] All specimens are in my collection unless otherwise noted.

Finet lists 154 species endemic to the Galapagos (19.4% from "shallow water" and 6.6% from "deep water") which is equal to 26 percent of his total listing. In this paper I list six of these species, from my collection, that have been taken from outside of the Galapagos and I add 36 non-endemic species to Finet's list which reduces the endemic element to 23 percent. The percentages will undoubtedly drop as more taxa from other collections are reported. Certainly, additional species will also be added at a later date, after Montoya, Kaiser, and Everson complete their identifications. I also have a number of species that still await classification.

Our success in finding so many previously unreported species is primarily due to two factors. The first is that we found a number of these while diving at night. The second is that during all of my daytime dives, I was shaking rocks or dead coral into my collecting bag, which produces all of the microscopic species that are listed.

In the following list the taxa are generally placed in the order in which they are found in Keen (1971) including the species numbers assigned by Keen where applicable. Those species that do not have a Keen number that are preceded by I-P, are Indo-Pacific faunal taxa.

ADDITIONAL RECORDS

(All Panamic faunal constituents unless otherwise noted. I-P = Indo-Pacific fauna)

Gastropoda

5 *Sinezona rimuloides* (Carpenter, 1865). Intertidally, W of Pta. Comorandt, Floreana I.; 10-17 m, Champion I., Floreana I.

86 *Calliostoma mcleani* Shasky & Campbell, 1964. 17 m, S side Gardner I., Espanola I.; 10 m, S side Gardner I., Espanola I.; 13-20 m, Cousins Rock, Santiago I.

217 *Amphithalamus inclusus* Carpenter, 1865. See revisions. Intertidally W of Pta. Comorandt, Floreana I.

*Adapted from a paper presented at the Western Society of Malacologists meeting, Sonoma State University, July 1988.

236 *Rissoella johnstoni* Baker, Hanna & Strong, 1930. Intertidally W of Pta. Comorandt, Floreana I.
238 *Rissoella tumens* (Carpenter, 1857). 10-17 m, Champion I., Floreana I.
275 *Rissoina ericana* Hertlein & Strong, 1951. 10 m N tip of Baltra I.
467 *Caecum semilaeve* Carpenter, 1857. 17 m S side of Gardner I., Espanola I.
482 *Fartulum dextroversum* (Carpenter, 1857). 10 m N tip, Baltra I.
529 *Cerithiopsis guanacastensis* Hertlein & Strong, 1951. 17 m S side Gardner I., Espanola I.; 10-17 m Champion I., Floreana I.
I-P *Triphora triticea* (Pease, 1861). 17 m S side Gardner I., Espanola I.; 10-17m Champion I., Floreana I.
587 *Triphora oweni* Baker, 1926. 10-17 m Champion I., Floreana I.; 7-14 m Corona Del Diablo I., Floreana I.
694 *Eulima elegantissima* DeFolin, 1867. 10-17 m Champion I., Floreana I.; 17 m S side Gardner I., Espanola I.
771 *Fossarus angulatus* Carpenter, 1857. Intertidally W of Pta. Comorandt, Floreana I.
778 *Fossarus megasoma* (C.B. Adams, 1852). 7-14 m, Corona Del Diablo I., Floreana I.
I-P *Tonna perdix* (Linnaeus, 1758). [See Finet 1987b]
I-P *Linatella (Gelagna) succincta* (Linnaeus, 1771). 10-17 m, Enderby I., Floreana I.
997 *Murexiella vittata* (Broderip, 1833). [Omitted by Finet]
--- *Aspella pollux* Radwin & D'Attilio, 1976. 13 m, Champion I., Floreana I.
1095 *Neorapana muricata* (Broderip, 1832). Harland Collection, 9-27 m, Enderby I.
I-P *Cantharus fumosus* (Dillwyn, 1817). 10-17 m, Champion I., Floreana I.
1295 *Nassarius corpulentus* (C.B. Adams, 1852). 7-10 m, S side N. Plaza I., Santa Cruz I.
--- *Nassarius caelolineatus* Nesbitt & Pitt, 1986. 7-10 m, S side N Plaza I., Santa Cruz I.; 17-22 m, N side N Plaza I., Santa Cruz I. [See Revisions p. 9]
1462 *Cancellaria pulchra* Sowerby, 1832. Kaiser Collection, 13 m, Gardner I., Espanola I. [Removed from doubtful list]
1512 *Conus (Lithoconus) tessulatus* Born, 1778. 10 m, N tip of Baltra I. (small, dead specimen) [Indo-Pacific species]
1776 *Clathurella rigida* (Hinds, 1843). 10-17 m, Champion I., Floreana I.
1884 *Pyramidella (Pharcidella) hastata* (A. Adams in Sowerby, 1854). 15 m, in sand, Pta. Comorandt, Floreana I.
1995 *Odostomia (Menestho)grijalvae* Baker, Hanna & Strong, 1928. 10 m, N tip Baltra I.
2050 *Turbonilla (Chemnitzia) sinaloana* Strong, 1949. Intertidally, Pta. Comorandt, Floreana I.; 17-20 m, Cousins Rock, Santiago I.; 10 m, Champion I., Floreana I.
2053 *Turbonilla (Cingulina) evermanni* Baker, Hanna & Strong, 1928. 7-14 m, Corona Del Diablo I., Floreana I.; 10-17 m, Enderby I., Floreana I.
782 *Phasianema saxicola* (C.B. Adams, 1852). 17-20 m, Cousins Rock, Santiago I. [Described as *Litiopa*. *Fossarus* in Keen] [See Revisions, p. 9]
I-P *Herviera glirella* (Melvill & Standen, 1896). 10 m, Champion I., Floreana I.
2283 *Diacria quadridentata* (Blainville, 1821, *ex* Lesueur, MS). 17 m, S side Gardner I., Espanola I.
2315 *Julia thecaphora* (Carpenter, 1857). Intertidally, Bartolome I.

Bivalvia

129 *Septifer zeteki* Hertlein & Strong, 1946. Intertidally, Rabida I.; 15-18 m, Cousins Rock, Santiago I.; 50 m under coral off Espanola I.

156 *Pinna rugosa* Sowerby, 1835
[See Finet, 1987a]

381 *Verticordia isocardia* (Verrill, 1870). Kaiser Collection, 18 m, Gardner I., Espanola I.; 17 m, Enderby I., Floreana I.; 20 m, Pta. Suarez, Espanola I.; 27 m, Albany Rock, Santiago I.

Omission

997 *Murexiella vittata* (Broderip, 1833)

Finet, after examining many specimens in several museums labeled *Murexiella vittata* (Broderip, 1833), determined that these were all *Murexiella venustula* Poorman, 1983. (Personal communication)

I recently had Anthony D'Attilio compare my Galapagan specimens as well as the San Diego Natural History Museum specimens with the holotype of *Murexiella venustula*. He was unable to separate these taxa. (Personal communication)

I do not wish to enter further into this controversy. Consequently, both names are allowed to stand in this paper.

REVISIONS OF NOMENCLATURE

Barleeidae 196 *Lirobarleeia galapagensis* (Bartsch, 1911)
199 *Lirobarleeia halia* (Bartsch, 1911)
201 *Lirobarleeia hoodensis* (Bartsch, 1911)
208 *Lirobarleeia nemo* (Bartsch, 1911)
217 *Amphithalamus inclusus* Carpenter, 1865

For all of the above, see Ponder, 1983.

Rissoinidae 276 *Rissoina insignis* (DeFolin, 1867). According to Ponder (1985), *R. signae* (Bartsch, 1915) is a junior synonym.

Vanikoridae 797 *Vanikoro aperta* (Carpenter, 1864). I am unable to find any character differences between *V. aperta* and *V. galapagana* (Hertlein & Strong, 1951).

Muricidae 1022 *Evokesia rufonotata* (Carpenter, 1864). This species has been listed through time in various genera. See Radwin & D'Attilio, 1976.

Nassaridae --- *Nassarius caelolineatus* Nesbitt & Pitt, 1986. Previous records of *N. nodicinctus* in the Galapagos have been shown to be in error. See Nesbitt & Pitt, 1986.

ACKNOWLEDGMENTS

I wish to thank Dr. Finet for reviewing this paper and making corrections and Mr. Anthony D'Attilio for examining specimens of *Murexiella vittata* and *M. venustula*.

LITERATURE CITED

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1986. Taxonomy of gastropods of the families Ranellidae (=Cymatiidae) and Bursidae. Part I Adoption of Ranellidae and review of *Linatella* Gray, 1857. New Zealand Jour. Zool. 13:241-246, 35 figs.

FINET, YVES
1985. Preliminary faunal list of the marine mollusks of the Galapagos Islands. Documents de Travail. 20. Inst. Roy. Sci. Natur. Belgique. 50 pp.
1987a. *Pinna rugosa* Sowerby, 1835. (Bivalvia: Pinnidae) at the Galapagos Islands. Veliger 30(1):99 (July)
1987b. An Indo-Pacific tonnid (Gastropoda: Tonnidae) recorded from the Galapagos Islands. Revue Suisse Zool. 94(4):819-827, 3 figs. (December)

KEEN, A. MYRA
1971. Sea shells of tropical west America, 2nd ed. Stanford Univ. Press., 1064+ pp., illus.
NESBITT, E.C. and W. PITT
1986. *Nassarius* (Gastropoda: Neogastropoda) from the Galapagos Islands. Veliger 28(3):294-301
PONDER, WINSTON F.
1983. Review of the genera of the Barleeidae (Mollusca: Gastropoda: Rissoacea). Rec. Aust. Mus. 35:231-281, 21 figs.
1985. A review of the genera of the Rissoidae (Mollusca: Mesogastropoda: Rissoacea). Rec. Aust. Mus. Supplement 4, 221 pp., 153 figs. (February)
RADWIN, G.E. and A. D'ATTILIO
1976. Murex shells of the world. An illustrated guide to the Muricidae. Stanford Univ. Press. 264 pp., 32 pls., 192 text figs.

BOOK NEWS

NEW PUBLICATION RECEIVED

A BIBLIOGRAPHY OF THE RECENT MARGINELLIDAE. 1988
By Gary A. Coovert
Publication of Dayton Museum of Natural History, 2629 Ridge Ave., Dayton, OH 45414
Price: "Subscription dues are voluntary but encouraged."

The author has compiled a very useful bibliography which "presumably contains references for every validly described" species and genus of Recent Marginellidae with a total of approximately 750 references, listed by author and cross-indexed under various sections such as anatomy, geography, keys, type specimens-lists and type specimens-photographs.

The author plans to issue a complete bibliography for the fossil Marginellidae literature at a later date although some fossil entries are in the current volume.

This work will be available for circulation at the January Club meeting.

NOTICE OF NEW PUBLICATIONS

A CLASSIFICATION OF THE LIVING MOLLUSCA. 1988. Assembled by Kay Cunningham Vaught. Edited by R. Tucker Abbott and Kenneth J. Boss. vii +188 pages
Price: $17.00 plastic binding; $21.00 library, hardback, sewn
Published by: American Malacologists Inc., P.O. Box 1192, Burlington, MA 01803
"Over 15,300 supraspecific scientific names. Embraces 8,500 accepted genera and subgenera arranged in proper systematic order, with authors and accurate dates. Assembled over a period of 10 years with the assistance of such leading malacologists as Beu, Houbrick, Keen, Rosewater, Ponder, Scheltema, Solem, Vokes and Waren. Includes all names through 1987."

PROSOBRANCH PHYLOGENY. 1988.
Editor: W.F. Ponder
Malacological Review, Supplement 4, hardbound, approx. 360 pages
(Proceedings of a Symposium held at the 9th International Malacological Congress, Edinburgh, Scotland--1986.)
Price: $48.00
[Flyer with listing of authors and contents included in this book will be available at the January meeting.]

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MEMBERSHIP AND SUBSCRIPTION

Annual dues are payable to San Diego Shell Club. Single member: $10.00; Family membership: $12.00; Overseas (surface mail): $12.00. Address all correspondence to the San Diego Shell Club, Inc., c/o 3883 Mt. Blackburn Ave., San Diego, CA 92111 Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

PROGRAM

"A NONPROFESSIONAL, UNEDUCATIONAL TRAVELOGUE TO THE SOLOMONS AND NEW GUINEA"

Marge and Ken Lindall will give a slide show, both topside and underwater, of their recent trip to these islands. They will also bring a display of shells of the area.

Slides of the Christmas party will also be shown.

Shell family of the month: Typhidae. Bring in your shells for display.

Meeting date: February 16th

CONTENTS

FOR YOUR INFORMATION

AMU-WSM 1989--A COMBINED ANNUAL MEETING IN LOS ANGELES

The 22nd annual meeting of the Western Society of Malacologists and the 55th annual meeting of the American Malacological Union will be held jointly from June 25-30, 1989 at the Davidson Conference Center on the campus of the University of Southern California, with some evening events scheduled at the Los Angeles County Museum of Natural History.

In addition to scheduled papers, two major symposia sponsored by the AMU are planned: one on Pelagic Gastropods, convened by Roger R. Seapy and the second on the Systematics and Evolution of Western North American Land Mollusks (honoring Walter B. Miller) convened by F.G. Hochberg and Barry Roth. There will also be a shorter session on Scaphopod Biology convened by Ronald L. Shimek.

A full schedule of other events includes an auction of books and shells and a reprint sale to be held by the WSM with proceeds to support student grants; field trips and shell bourse in addition to evening social events: Presidents' reception, barbecue, banquet, slide shows etc.

For further information (registration forms, application forms for prospective speakers, accommodations etc.) contact either AMU president James H. McLean, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, CA 90007 (213 744-3377) or WSM president Hans Bertsch, c/o LACM (home telephone 213 372-4436).

COA 1989--IN SAN DIEGO

The Conchologists of America will hold its 17th annual convention in San Diego from June 19-23, 1989 at the Holiday Inn at the Embarcadero in San Diego. The convention highlights will include field trips, program meeting sessions, tours, auction, dealers' bourse and banquet.

The convention will begin with a Welcome Party on Monday evening, June 19th hosted by the San Diego Shell Club.

For further information contact Registration Chairman Maria Goldstein, P.O. Box 1044, El Cajon, CA 92020 (619 562-5459) or Convention Chairman Don Pisor, 646 N 30th St., San Diego, CA 92102 (619 234-1249).

A GRANT-IN-AID SCHOLARSHIP OFFERED BY THE JACKSONVILLE SHELL CLUB

The Jacksonville Shell Club, Inc. announces a five hundred dollar grant-in-aid to a scholar who has demonstrated an interest and competence in natural science. The applicant must be enrolled in a program of study at an accredited U.S. institution at the college or post-graduate level. Special consideration will be given those applicants who are pursuing a curriculum in systematics, evolution, ecology, and malacology.

Applications will be accepted until May 1, 1989. Two letters of recommendation (one from the department head or advisor) and an academic transcript equivalent to the most recent year of study are required. Send for applications to: Harry Lee, M.D., Scholarship Committee, Jacksonville Shell Club, Inc., 709 Lomax St., Jacksonville, FL 32204.

SANIBEL SHELL FAIR

The 52nd Sanibel Shell Fair will be held at the Sanibel Community Center, 2173 Periwinkle Way on March 2-5, 1989. The Fair promises colorful activites and brilliant exhibits of seashells from all over the world. For further information contact Mili Backus, Director, 52nd Sanibel Shell Fair, Box 76, Sanibel, FL 33957 (813 472-4709) for further information.

ON THE OCCURRENCE OF CHARONIA TRITONIS (LINNAEUS) IN THE EASTERN PACIFIC (RANELLIDAE: CYMATIINAE)

BY

WILLIAM K. EMERSON

Department of Invertebrates, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024

This paper records the third verified occurrence of a living specimen of the Indo-Pacific giant triton, *Charonia tritonis* (Linnaeus, 1758), in eastern Pacific waters. The previous records were based on single specimens from Isla del Coco (Cocos Island) reported by Shasky (1983:144) and Montoya (1983:8) and from Isla Fernandina (Narborough Island) in the Galapagos Islands cited by Shasky (1983:144) and Finet (1985:18).

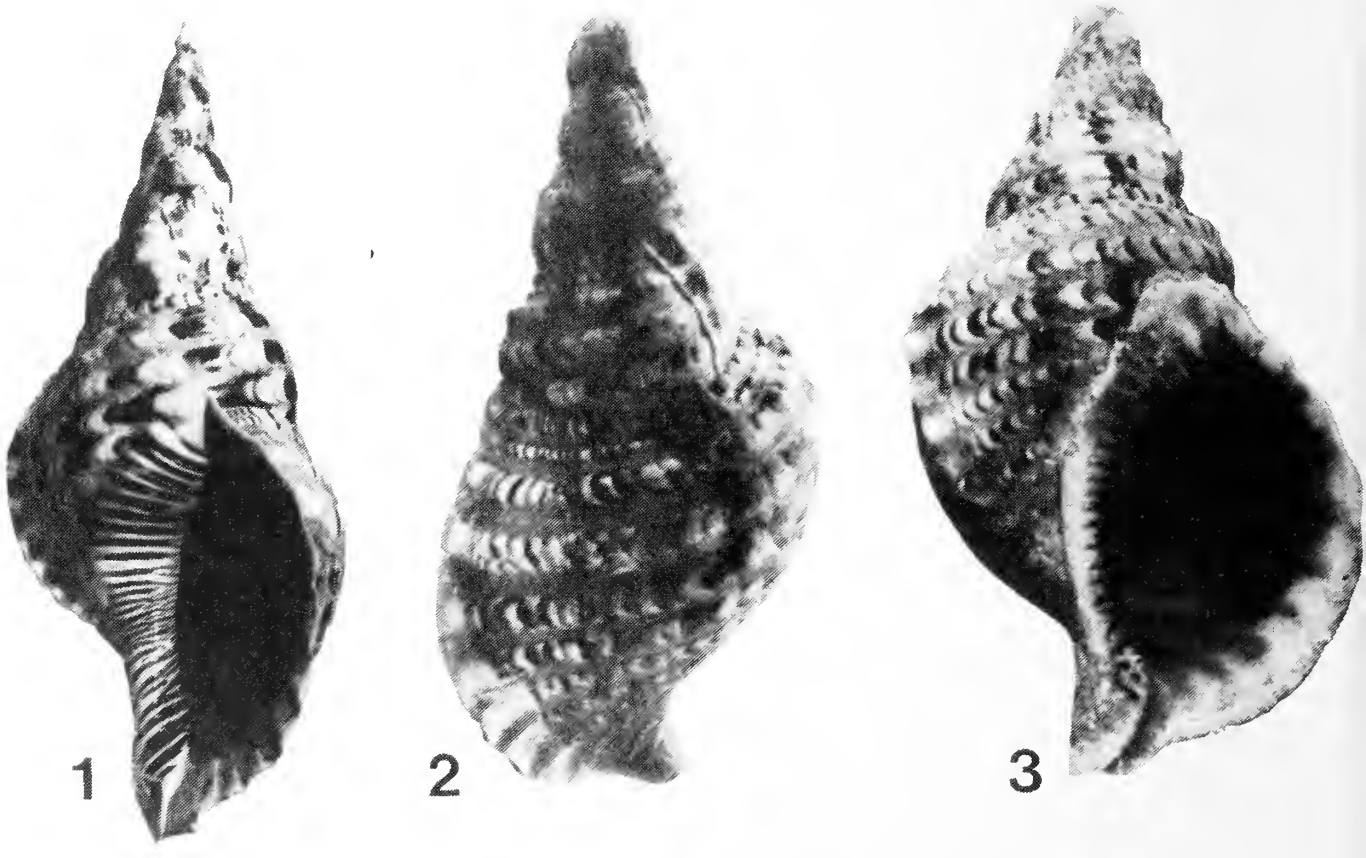
An additional live-collected specimen from the Galapagos Archipelago was recently called to my attention. It was collected by Gayle Robinson on December 12, 1981 while SCUBA diving in about 60 feet (18 meters) of water approximately 3 miles (5 km) east of Academy Bay, Isla Santa Cruz (Indefatigable Island). This mature specimen, which is approximately 12 inches (30.5 cm), was observed feeding on a specimen of the asteroid sea star, *Nidorellia,* according to Gary Robinson (*in litt.*, October 21, 1988). The shell (see Figure 1) and operculum were deposited in the Museum of the Charles Darwin Research Station at Academy Bay in May 1985. As reported by Shasky (1983:144), the only other known living specimen of this triton from Galapagan waters was obtained by diving at a depth of 7 feet (2.1 meters) near Punta Mangle, Fernandina Island, where it was found crawling on boulders. The shell (see Figures 2-3) and operculum were purchased from a local collector by Mrs. Carmen Angermeyer, a resident of Academy Bay, in August 1965. This specimen was estimated by her to have been 12 inches (30.5 cm) in length before the apex was lost to breakage. The lone specimen of this triton known from Cocos Island was found by SCUBA diving in 125 feet (42 meters) near Wafer Bay, in June 1981 and was donated by the collector to the Costa Rica Museum (Montoya, 1983:8). This specimen was said to measure about 8 inches (20.3 cm) in length.

Charonia tritonis is widely distributed in the vast Indo-west Pacific faunal province. Populations are known to occur in the Indian Ocean, westward from the coast of Africa, and extend into the Pacific Basin, northward to southern Japan and the Hawaiian Islands and southward to Australia and New Zealand and perhaps as far to the southwest as Pitcairn Island (Beu, 1970:208; 1986:57). Populations which occur in the western Pacific Ocean closest to Cocos Island and the Galapagos Islands are known from the Line Islands (Kay, 1971:275) and the Tuamotu Archipelago (Couturier, 1907:147; Salvat and Rives, 1980:306), as well as the Society Islands (Dautzenberg and Bouge, 1933:253; Salvat and Rives, 1980:306). Rehder (1968:30) does not cite this taxon from the Marquesas Islands in his brief list of the most common and striking species he collected there. At my request, M.G. Harasewych searched without success the Smithsonian Institution holdings for records from the Marquesas Islands and Pitcairn Island, where Dr. Rehder also made extensive collections. Dr. Rehder subsequently informed me that he did not encounter this triton in the Marquesas Islands or at Pitcairn Island (pers. comm., October 26, 1988).

Many species of the subfamily Cymatiinae have extensive geographical ranges resulting from the presence of a long-lived, planktotrophic larval stage, which permits passive dispersal over great distances and across deep-water barriers. The infrequent sighting of this Indo-Pacific species in eastern Pacific waters suggests that viable populations of this taxon are rarely encountered or have yet to become temporally established on the oceanic islands off the West Americas. This triton is

not known from Clipperton Island, which has a molluscan fauna about equally divided between elements of the Panamic and Indo-west Pacific provinces (Emerson, 1967). The presence of this triton in the Galapagos Islands may reflect teleplanic larvae that were transported westward from populations in the Line Islands by the submerged Cromwell Current (Equatorial Undercurrent), whereas its occurrence at Cocos Island may represent larval dispersal westward by the Equatorial Countercurrent from the same sources (see Scheltema, 1988 and Zinsmeister and Emerson, 1979 for a discussion of the distributional role of the oceanic current patterns).

Only five other representatives of the Cymatiinae that occur widely in the western Pacific are known in eastern Pacific waters. These are: 1, *Cymatium (Monoplex) pileare* (Linnaeus, 1758) [as *macrodon* (Valenciennes, 1832) Beu and Kay, 1988:210], from Clipperton Island, Cocos Island, the Galapagos Islands, and on the mainland from Baja California, Mexico to Panama; 2, *C. (M.) parthenopeum* (Von Salis, 1793) [as *parthenopeum keenae* (Beu, 1970), Beu and Kay, 1988:213], from the Galapagos Islands and Baja California, Mexico to Peru; 3, *C. (m.) aquatile* (Reeve, 1844), known in the eastern Pacific on the basis of a single badly eroded beach specimen from Cocos Island (American Museum of Natural History 107015), *fide* Beu and Kay (1988:200); 4, *C. (M.) nicobaricum* (Roeding, 1798), from Clipperton Island and Cocos Island (Emerson, 1978; Shasky, 1984, 1985); 5, *C. (Gutturnium) muricatum* (Roeding, 1798), from the Galapagos Islands and the Golfo de Montijo, Panama (Emerson, 1983).



Figures 1-3 Specimens of *Charonia tritonis* from the Galapagos Islands. Figure 1, Isla Santa Cruz, in 1981 (photograph courtesy of G. Robinson). Figures 2-3, off Isla Fernandina, in 1965 (photographs courtesy of C. Angermeyer). Figures greatly reduced in size.

ACKNOWLEDGMENTS

I thank Ian Stupakoff for calling my attention to the Galapagan specimen of *Charonia* obtained by Gayle Robinson and Gary Robinson for providing collecting data and a photograph of the specimen. I am grateful for the help of Dr. M.G. Harasewych. Andrew S. Modell and Walter E. Sage III kindly provided technical assistance.

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1989 LOW TIDES FOR THE NORTHERN GULF OF CALIFORNIA

The entries listed below will show only periods of low tides of -4.0 feet* and below. The times of low tides are given in Mountain Standard Time. To correct for San Felipe, subtract one hour for listed times for Punta Peñasco (San Felipe is on Pacific Standard Time).

March		April		October	
5.	-3.9 at 6:48 P.M.	5.	-4.7 at 7:24 A.M.	13.	-3.6 at 6:54 P.M.
6.	-5.0 at 7:24 P.M.		-3.8 at 7:48 P.M.	14.	-4.5 at 7:30 P.M.
7.	-3.7 at 7:54 A.M.	6.	-5.4 at 8:00 A.M.	15.	-4.5 at 8:06 P.M.
	-5.2 at 8:08 P.M.	7.	-5.2 at 8:36 A.M.	November	
8.	-4.5 at 8:30 A.M.	8.	-4.3 at 9:12 A.M.	11.	-4.1 at 6:30 P.M.
	-4.4 at 8:42 P.M.	May		12.	-4.7 at 7:06 P.M.
9.	-4.7 at 9:00 A.M.	4.	-4.6 at 7:00 A.M.	13.	-4.7 at 7:48 P.M.
10.	-4.0 at 9:36 A.M.	5.	-5.0 at 7:36 A.M.	14.	-3.9 at 8:30 P.M.
		6.	-4.7 at 8:12 A.M.	December	
		7.	-3.7 at 8:54 A.M.	11.	-4.2 at 7:00 P.M.
				12.	-4.4 at 7:42 P.M.
				13.	-3.9 at 8:24 P.M.

Low tides for Bahía de Los Angeles are given below showing only periods of -2.0 feet* and below. All times are Mountain Standard.

May		July		November	
4.	-1.9 at 7:18 A.M.	17.	-1.6 at 7:06 A.M.	11.	-1.9 at 6:54 P.M.
5.	-2.3 at 7:48 A.M.	18.	-2.0 at 7:42 A.M.	12.	-2.5 at 7:24 P.M.
6.	-2.5 at 8:24 A.M.	19.	-2.1 at 8:24 A.M.	13.	-2.8 at 8:00 P.M.
7.	-2.3 at 9:00 A.M.	20.	-2.0 at 9:00 A.M.	14.	-2.7 at 8:36 P.M.
8.	-1.8 at 9:36 A.M.	21.	-1.5 at 9:36 A.M.	15.	-2.3 at 9:18 P.M.
June		October		December	
2.	-2.2 at 6:48 A.M.	14.	-1.7 at 7:54 P.M.	9.	-1.5 at 5:48 P.M.
3.	-2.5 at 7:30 A.M.	15.	-2.1 at 8:24 P.M.	10.	-2.2 at 6:30 P.M.
4.	-2.5 at 8:06 A.M.	16.	-2.2 at 9:00 P.M.	11.	-2.7 at 7:06 P.M.
5.	-2.3 at 8:42 A.M.	17.	-1.9 at 9:36 P.M.	12.	-2.8 at 7:48 P.M.
6.	-1.8 at 9:24 A.M.			13.	-2.7 at 8:30 P.M.
				14.	-2.3 at 9:06 P.M.
				15.	-1.6 at 9:42 P.M.

*Slightly higher tides are listed when in conjunction with a series of extreme low tides.

SUPPLEMENT TO THE FESTIVUS VOLUME XX IS AVAILABLE

"An Illustrated Catalogue of the Family Typhidae, Cossmann, 1903 (Gastropoda: Muricacea)" by Anthony D'Attilio and Carole M. Hertz is available at $11.00 domestic; $12.00 overseas surface and $15.50 overseas air mail, all postpaid.

The Catalogue contains over 73 pages of information on the family with over 109 drawings by the senior author illustrating 85 typhid species. The Supplement has two catalogues enumerating nominal taxa in the Typhidae: one of the described fossil and Recent genera and the other of the fossil and Recent species.

To order the Catalogue send your check to the San Diego Shell Club, 3883 Mt. Blackburn Avenue, San Diego, CA 92111, USA

THE FAMILY OMALOGYRIDAE IN THE TROPICAL EASTERN PACIFIC *

BY

DONALD R. SHASKY

834 W. Highland Avenue, Redlands, California 92373

The genus *Omalogyra* Jeffreys, 1867, in the family Omalogyridae, contains species found in northern Europe, the Mediterranean, West Africa, locations on our Atlantic coast, and at least one species in the Indo-Pacific. *Omalogyra japonica* (Habe, 1972) has been reported from Hawaii to Japan.

In 1983, I found a single specimen of a curious, minute, brown shell from Cocos Island, Costa Rica, that was about 0.5-0.7 mm in diameter. Unfortunately, this shell was lost as it was being photographed.

Later, I found six specimens of the same species at Guaymas, Sonora, Mexico, but all but one of these were crushed or lost.

In 1986, a second specimen was found at Cocos Island, Costa Rica, and this past February, Kirstie Kaiser and I found many additional specimens at various collecting stations in the Galapagos and Cocos Islands (Figure 1). It seems to be an undescribed species.

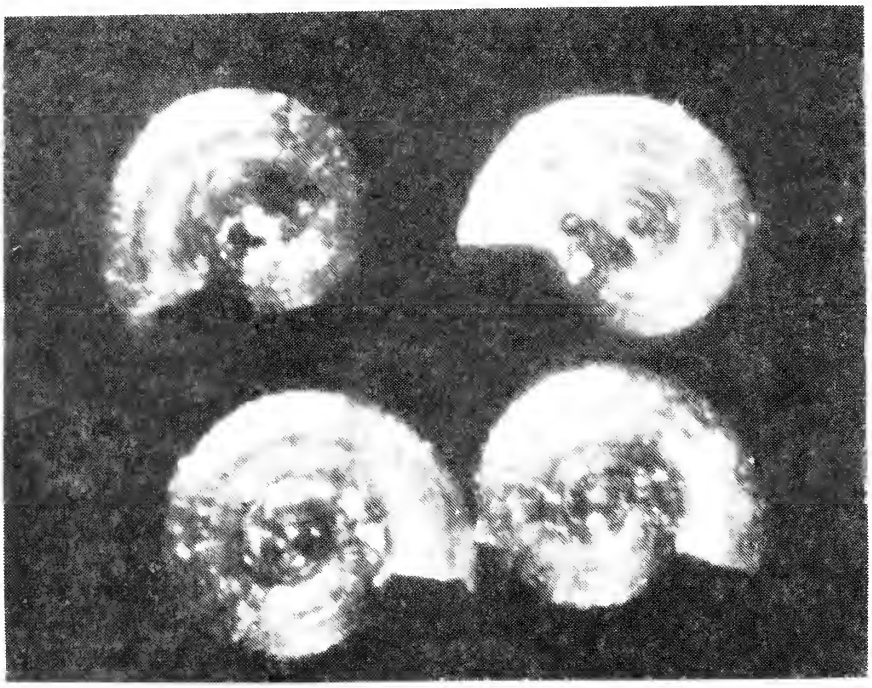

Figure 1. Two specimens of *Omalogyra* sp., ±0.6 mm diam. 9-15 m (30-50 ft.) under coral, Champion Is., Floreana Is., Galapagos Islands, leg. D. Shasky, February 1988

ACKNOWLEDGMENTS

My thanks go to Bertram Draper who photographed the two specimens and to David K. Mulliner who prepared the black and white print from Bert's slide.

* Adapted from a presentation to the Annual Meeting of the Western Society of Malacologists, Rohnert Park, California, July 1988.

ADDITION TO "AN UPDATE ON THE MOLLUSKS FROM THE GALAPAGOS ISLANDS AS LISTED IN 'PRELIMINARY FAUNAL LIST OF THE MARINE MOLLUSKS OF THE GALAPAGOS ISLANDS' BY YVES FINET"

BY

DONALD R. SHASKY

834 W. Highland Avenue, Redlands, California 92373

EDITORS NOTE: The revised draft of Dr. Shasky's paper submitted to The Festivus and published in the January 1989 issue [Vol. XXI(1):7-10] lacked the following two sections which should be considered part of the original paper. It belongs before the section "Omission" (page 9).

Taxa Removed From Endemic List (From Specimens in the Shasky Collection)

113 *Gaza rathbuni* Dall, 1890. Gulf of Panama
128 *Arene guttata* McLean, 1970. Cocos Island
159 *Tricolia diantha* McLean, 1970. Cocos Island
1042 *Trophon sentus* (Berry, 1969). Salango Island
1446 *Thala jeancateae* Sphon, 1969. Cocos Island
646 *Semele rupium* (Sowerby, 1833). Cocos Island

Taxa Removed From Mollusks of Doubtful Occurrence Status

1462 *Cancellaria pulchra* Sowerby, 1832
129 *Septifer zeteki* Hertlein & Strong, 1946

FROM THE MINUTES - SAN DIEGO SHELL CLUB MEETING - JANUARY 19, 1989

After President Larry Buck welcomed members and new members Mike and Kelly Johnson to the first meeting of the year, Richard Herrmann introduced our speaker for the evening, Norbert Wu, a graduate student at Scripps Institution of Oceanography and freelance photographer who shared with us some of his magnificent underwater photographs.

Norbert's array of dramatic slides included arctic dives, hitchhiking parasites on jellyfish, and ocean sunfish (also in their larval stages) in kelp forests. The skilled photographer also mentioned how, while filming a shark from above, looking down onto its darkly colored back, the animal will blend in with the dark water or reef below. He noted the opposite is true if your perspective is looking upward, since the underside of the shark is light colored. Members were also treated to photographic subjects which dwell at depths of 500 to 6,000 meters many with long, protrusible jaws and long, slender needlelike teeth.

Just before the break, Larry, anxious to find new ways of improving or adding to Club activities, circulated a questionaire and members checked off the kinds of activities they would like to see in the future.

During the break, longer than in the past, members had the opportunity to circulate and view a fine assortment of shell specimens brought in by Club members. The typhid shells will be the shells of the month for the February meeting.

At the business portion of the meeting Larry announced the date for the Auction/Potluck. It will be Saturday, April 15th and Larry called for donations to be brought to the next meeting.

The cookies were provided by Larry Buck and Carole Hertz and Linda La Grange was the winner of the door prize.

Wayne Reed

IN MEMORIAM

BARBARA GOOD
1922-1988

We report with regret the passing on December 25th of Barbara Good, a friend and active member of the San Diego Shell Club for the past twenty-two years. Barbara was an avid collector who corresponded and exchanged with collectors world-wide and whose special interest was in minute molluscan species. She could often be seen on trips going carefully through the kelp holdfasts and the roots of the washed-in surf grass to find the tiny species embedded there.

She was a participating member of the San Diego Shell Club (treasurer, 1963; contributor to The Festivus); the American Malacological Union-Pacific Division (secretary, 1965) and the Western Society of Malacologists and a willing worker in all of them.

After receiving her Masters Degree at U.C. Berkeley in 1944, she met and married Frank Good. After the war they settled in San Diego where he practiced law and she was, for a time, a social worker.

Barbara is survived by her son Rick, his wife Jane, and her three grandchildren. Our sympathy is extended to the family.

CHARLENE NEEB
-1988

Word has reached us that Charlene Neeb, a charter member of the San Diego Shell Club who was active in Club activities through the early 1970s, passed away some time in the latter part of 1988.

In an early article in The Festivus (April 1972) Charlene reminisced about observing and collecting mollusks in San Diego in the 50s and 60s. In a quote from that article which follows, Charlene noted that at the beach near the pier in Del Mar (they had one then) in 1959, "The [*Cypraea*] *spadicea* were so thick we were picking them up and putting them in our skirts - we wore dresses then - to put them back so the kids couldn't get them. The kids were throwing them around."

Charlene had been ill for many years.

CLUB NEWS

DUES ARE DUE

If you have not already done so, it is time to renew your membership for 1989. Send your check to the Club address. [See front page for address and dues rates.]

THE ANNUAL AUCTION/POTLUCK

The date is set. The Auction will be held on Saturday evening April 15th. Further details later. It is time, however, to donate choice shells for the Auction, the Club's only fundraiser. Either bring your donation to the February meeting or contact a board member to arrange for pickup. Your donations are important.

THE ANNUAL CHRISTMAS DINNER PARTY--1989

Believe it or not the date is set for the 1989 Christmas party. Mark your calendars for Saturday evening December 2nd. The party will again be in the San Diego Room of the Admiral Kidd Club.

NEW MEMBERS

Johnson, Michael and Kelly, 4218 60th St., San Diego, CA 92115 583-5119

THE FESTIVUS

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MEMBERSHIP AND SUBSCRIPTION

Annual dues are payable to San Diego Shell Club. Single member: $10.00; Family membership: $12.00; Overseas (surface mail): $12.00. Address all correspondence to the San Diego Shell Club, Inc., c/o 3883 Mt. Blackburn Ave., San Diego, CA 92111 Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

PROGRAM

THE AMBER FOREST

Ron McPeak, manager of marine biology at Kelco and award-winning underwater photographer and author (with Dale Glantz and Carole Shaw) of a new book entitled, "The Amber Forest" will give an illustrated talk on the ecology of the kelp forest emphasizing its molluscan denizens. Ron will also have copies of his new book at this meeting.

Shell family of the month: Olividae. Bring in your olive shells for display.

Meeting date: March 16, 1989

CONTENTS

BOOK NEWS

THE AMBER FOREST: BEAUTY AND BIOLOGY OF CALIFORNIA'S SUBMARINE FORESTS
By: Ronald H. McPeak, Dale A. Glantz, and Carole R. Shaw. 1988.
Publisher: Watersport Publishing Inc., San Diego, California
144 pages, 125 plates,
Price: $24.95 softbound, $35.95 hardbound

At last, the long-awaited book on the kelp beds and their inhabitants has arrived. Aptly, the book by Club member Ronald H. McPeak and coauthors Dale A. Glantz and Carole R. Shaw is entitled THE AMBER FOREST: BEAUTY AND BIOLOGY OF CALIFORNIA'S SUBMARINE FORESTS. It contains 125 plates, mostly colored, within its 144 pages.

This book is about the giant amber-colored seaweed, *Macrocystis pyrifera*, commonly called giant kelp. Starting with an overview of the localities at which kelp forests occur the introduction continues with a brief discussion of the historical importance of kelp. Sections follow on the life cycle and growth of kelp and the ever-changing appearance of the forest as the plants are exposed to the forces of nature. The forest as a habitat is divided into sections on the holdfasts, the midwater fronds, and the surface canopy. Interspersed throughout the text are magnificent underwater color photographs of the forest and its inhabitants as well as surface photography of the kelp forests and the adjacent coastlines. The book is done in quality heavy, glossy stock and the photography alone is worth the price. Most of the photographs were taken by authors McPeak and Glantz, but there are also photographs by other well-known San Diego underwater photographers.

The text concludes with chapters on the harvesting of the kelp forests, fishing and diving in the "forest," conservation, and education.

The book is written for a wide audience and will be enjoyed by the layman whether as amateur scientist, diver or as an appreciator of the beauty of nature. The type is large and easy to read and the well-written text is easily understood with a wealth of information packed into the relatively small volume.

The inhabitants of the Amber Forest and transients that pass through it range in size from microscopic bryozoans to gigantic mammals such as the gray whale. They include birds, fishes, mammals and invertebrates. They are beautifully captured in color photographs and it is difficult to pick favorites. This reviewer's personal choices are closeup shots of an otter, an elephant seal and a proliferating sea anemone (*Epiactis prolifera*).

I found only a few plates which detracted from the tone of the book. One was of a posed red abalone shell (*Haliotis rufescens*) on a stretch of wet sand. The others were a series of three plates on the commercial products made from kelp, which I believe diminished rather than enhanced the overall image of this beautiful volume.

Jules Hertz

CORRECTION: In the February issue of The Festivus the COA convention chairman's phone number was incorrect. To contact chairman Don Pisor concerning the COA convention in June 1989, call 234-0249.

ASTRAEA (MEGASTRAEA) TURBANICA (DALL, 1910) FOUND IN COASTAL WATERS AT SAN DIEGO, CALIFORNIA

BY

BARBARA W. MYERS

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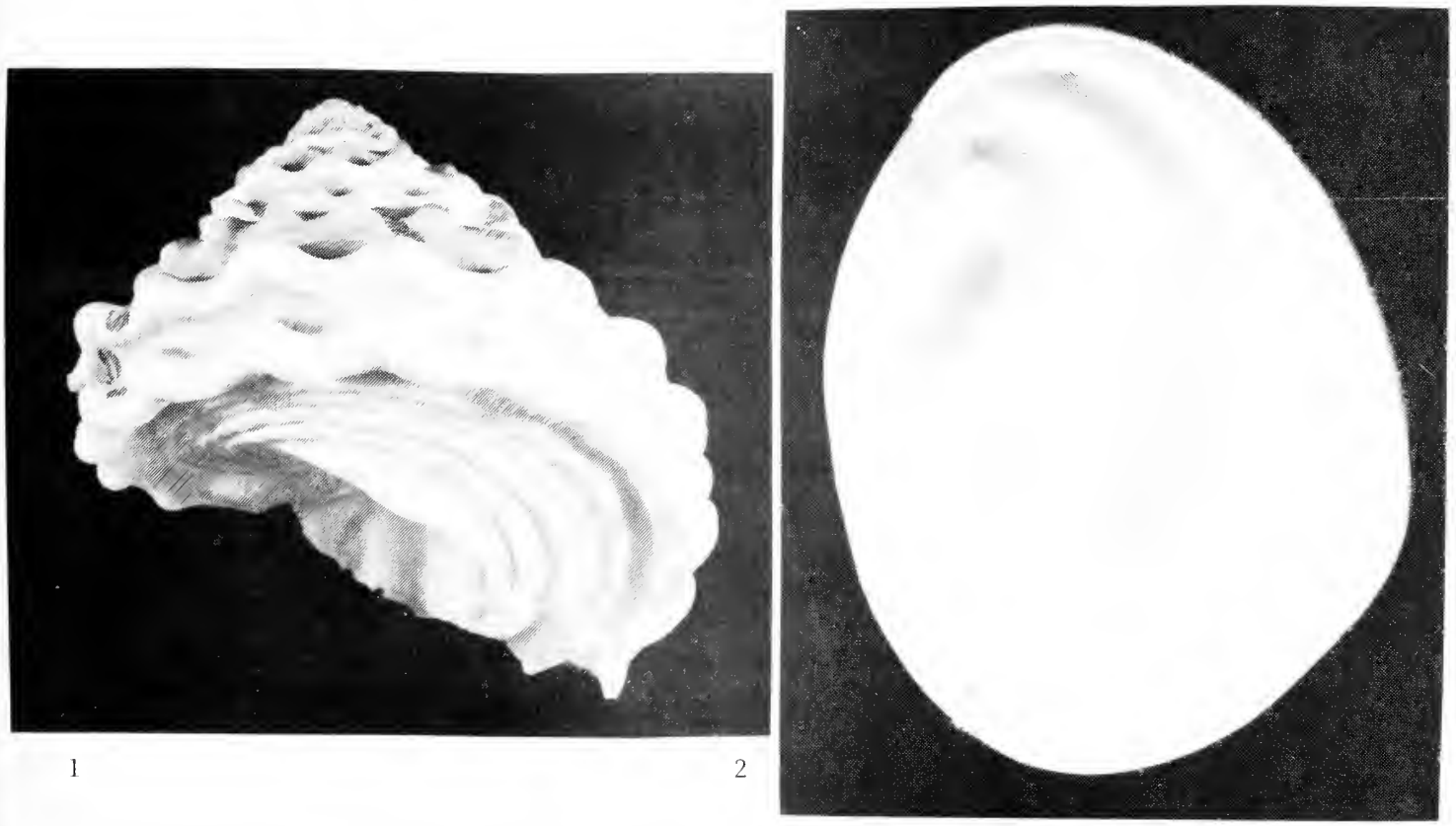
P.O. Box 1390, San Diego, California 92112

Between March and September, 1988, 30 immature specimens of *Astraea turbanica* (Dall, 1910:134-135) ranging in size from 53.4 to 85.7 mm were collected by John Myers using SCUBA at Pt. Loma, San Diego, California and Bird Rock, La Jolla, California from a depth of 25 meters (Figures 1-3). Two specimens have been deposited in the San Diego Natural History Museum (SDNHM 93366). This species is not usually found in coastal San Diego waters, and is more commonly found on offshore islands along the west coast of the Baja California peninsula, Mexico.



1 2

Figures 1 and 2. *Astraea turbanica* (Dall, 1910). (1) Immature specimen showing double carinae. B.W. Myers collection. Specimen from Pt. Loma, San Diego, California. 66.6 mm height, 86.3 mm width. (2) Operculum of *A. turbanica* showing subcircular shape compared to the pointed oval shape of *A. undosa*. Also shows the ribs curving around the anterior end instead of terminating anteriorly as in *A. undosa*. Same specimen as Figure 1.

Photos: D.K. Mulliner

McLean (1971) noted that *A. turbanica* differs from the more common *A. undosa* (Wood, 1828) in having two strong peripheral ridges rather than one and the lowermost ridge of the operculum is curved and nearly lacking spines while that of *A. undosa* is uncurved and spiny. *A. undosa* is found along the Pacific coast of North America from Pt. Conception to Asuncion Island, central Baja California (McLean, 1970). The *A. turbanica* specimens from Pt. Loma and Bird Rock were found in association with *A. undosa* on the same substrate and at the same depth.

Stohler (1959) detailed the differences between *A. undosa* and *A. rupicollina* Stohler, 1959 (Figure 4) and *A. petrothauma* Berry, 1940 (Figure 5). McLean (1970) placed *A. petrothauma* and *A. rupicollina* into the synonymy of *A. turbanica*.

Figure 3. *A. turbanica*, Holotype, USNM 111242. Type locality: Magdalena Bay, Baja California, Mexico. 41.0 mm diameter. After Grant and Gale, 1931.

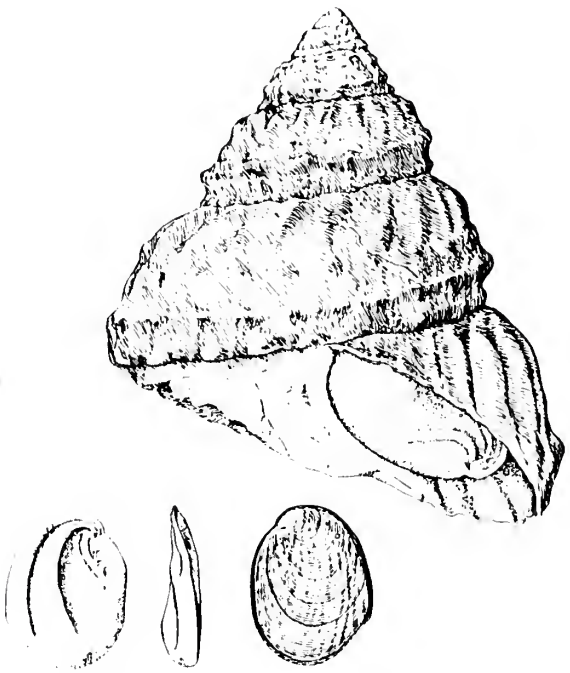


Figure 4. *A. rupicollina* Stohler, 1959. Holotype USNM 610331. Synonym of *A. turbanica*. Type locality: South Coronado Island, Baja California, Mexico. 163 mm height, 134 mm diameter.

Figure 5. *A. petrothauma* Berry, 1940. Berry collection 7701 (now at Santa Barbara Museum of Natural History). Synonym of *A. turbanica*. Lower Pleistocene "Hilltop Quarry," San Pedro, California. 49.3 mm height, 39.3 mm diameter.

One other species in this complex, *A. gradata* Grant and Gale, 1931, appears closely related to *A. turbanica*. The holotype (SDNHM 286, Paleontology collection) (Figure 6) is from the Middle Pliocene, southeast of Pico Canyon, Los Angeles County. The operculum (paratype SDNHM 287, Paleontology collection) (Figure 7) was found separately and is from the Pliocene of Holser Canyon, north of Santa Clara Valley, Los Angeles County. The operculum differs from that of *A. turbanica* in possessing only two ribs, instead of three; the ribs are thicker and more robust, and there is a knob or thickening at the apex.

A. turbanica appears to be highly variable in its height to width ratio of the shell and in the strength of the axial ribs. In some specimens the whorls are

tabulate. The double carinae often become less prominent as specimens reach maximum size. Several specimens in the Los Angeles County Museum of Natural History collection measure over 160 mm in height. The holotype of *A. rupicollina* (USNM 610331) (Figure 4) is recorded at 163 mm height. A paratype of *A. rupicollina* (SDNHM 10855) measures 141.5 mm height and 124.5 mm width. An operculum of *A. petrothauma* of 63.5 mm (Figure 8) was obviously meant for a much larger shell and according to Berry indicates that at maturity the species greatly exceeds the size of the specimens he found (Figure 8).

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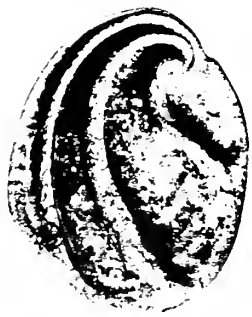

8

Figures 6-8. (6) *A. gradata* Grant and Gale, 1931. Holotype SDNHM 286 Paleontology collection. Type locality Middle Pliocene between Pico Canyon and Fernando Pass, Los Angeles County. 65 mm diameter. After Grant and Gale (1931). (7) *A. gradata*. Operculum of Paratype SDNHM 287 Paleontology collection. Locality Middle Pliocene of Holser Canyon north of Santa Clara Valley, Los Angeles County. 27.0 mm. After Grant and Gale (1931). (8) *A. petrothauma*. Operculum (paratype) measuring 63.6 mm. After Berry (1940) who noted that it was for a shell of a much larger size than any he found.

Twenty-two lots in the Los Angeles County Museum of Natural History collection establish *A. turbanica* from Coronado del Medio, Los Coronados, Mexico (32°25.5'N) (LACM 71-98), and south at the following islands along the west coast of the Baja California peninsula: San Martin, San Geronimo, Guadalupe, San Benito, Cedros, Natividad, and on the mainland peninsula at Punta Rompiente, Cabo Thurloe and Punta de San Pablo (27°12'30"N) (LACM 71-178). The southernmost range of this species was established by Dall (1910) at Magdalena Bay, the type locality. The specimens recently collected at Pt. Loma and Bird Rock, California extend the known distribution of *A. turbanica* north the short distance of approximately 50 kilometers, but the mainland record for this species is extended approximately 600 kilometers north. Little diving has been done along this stretch of the coast of Baja California and in the future, specimens of *A. turbanica* may be found in new localities from Magdalena Bay to San Diego. The species has also been found in kitchen middens at Santa Barbara Island, Ventura County, California (LACM 45221) and as a fossil in the Lower Pleistocene, "Hilltop Quarry," San Pedro, Los Angeles County, California (Berry, 1940), type locality of *A. petrothauma*.

ACKNOWLEDGMENTS

This study was carried out at the San Diego Natural History Museum, and I wish to thank the Museum for the use of its molluscan collection and library as well as the use of equipment and facilities.

I also wish to thank J.H. McLean of the Los Angeles County Museum of Natural History for reviewing this paper and for the opportunity to study specimens of *A. turbanica* in the Museum collection. I further thank David K. Mulliner for taking the photographs of *A. turbanica* and lastly John Myers for his important contribution to this paper--the discovery of *A. turbanica* along our coast at Pt. Loma and Bird Rock.

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A NOTE ON THE DISTRIBUTION OF FAVARTIA ROSAMIAE D'ATTILIO AND MYERS, 1985

ANTHONY D'ATTILIO

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In examining the specimens of *Favartia rosamiae* D'Attilio and Myers, 1985, in the Don Pisor collection, I noted a specimen collected by Mr. Pisor at Vava'u, Tonga in June 1986. This indicates that this small species, known from 75 to 100 meters in the Philippine Islands and Okinawa, is most likely more widely distributed than previously thought from the description of the type material.

Mr. Pisor has kindly donated this specimen to the Marine Invertebrate collection (SDNHM 93367) of the San Diego Natural History Museum.

A TRIP TO PUERTO ESCONDIDO

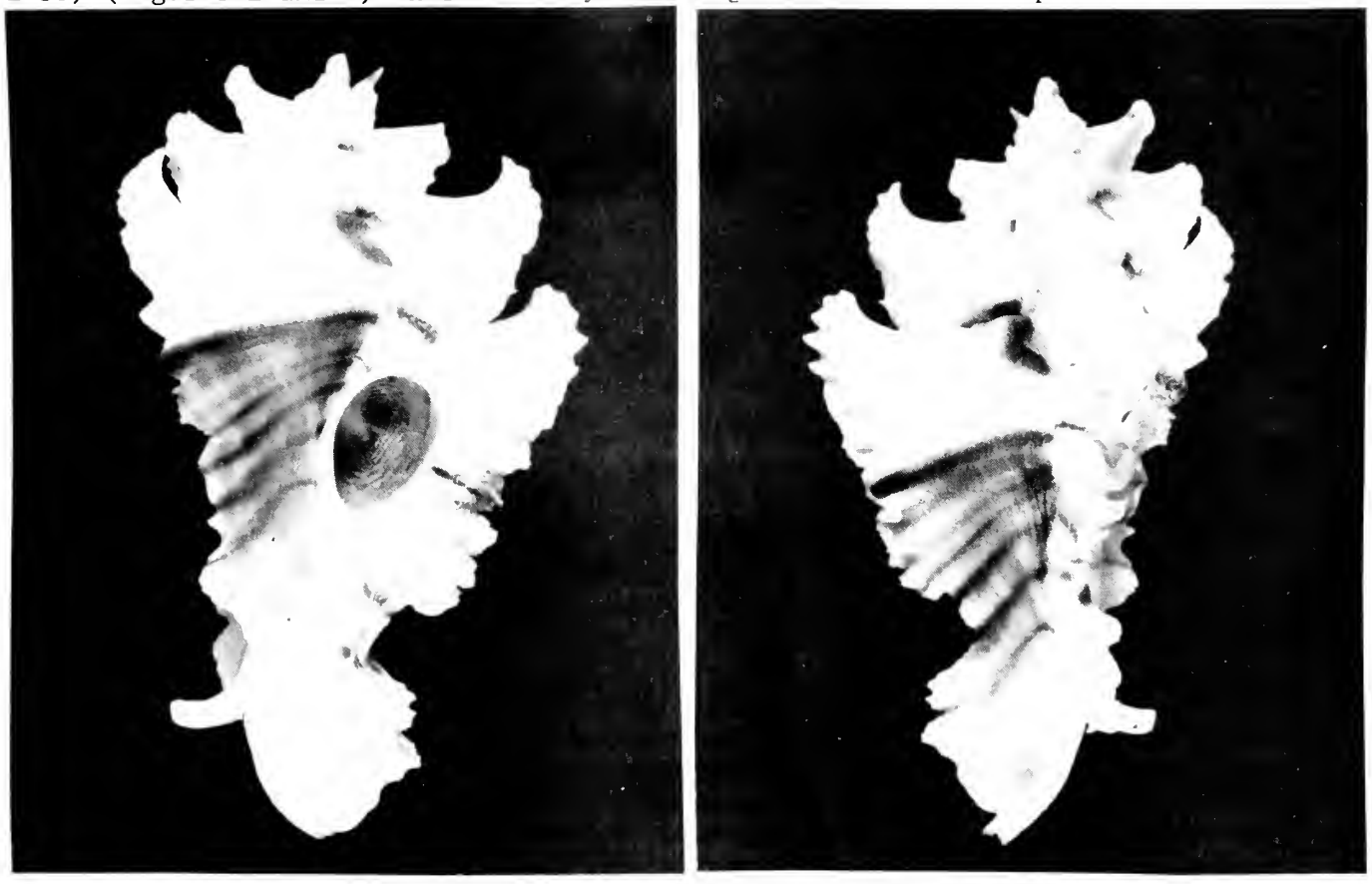
LARRY BUCK

2534 Via Pisa, Del Mar, California 92014

In December 1988, a group from San Diego including Margaret and Dave Mulliner, Nola Michel and I traveled to Puerto Escondido, Baja California Sur, Mexico for a two week shell collecting trip. We encountered a mixture of weather conditions, but the water for diving/collecting was consistently good. The water temperature was in the low seventies, underwater visibility was usually over 30 feet, and we found some unusually good shells.

My ability to locate and identify bivalves by their siphons took a quantum leap on this trip. It progressed from blankly staring at the bottom and seeing nothing to, "Wow! I know what that is." Baja has an abundance of magnificent bivalves. I found a sizable number of *Spondylus princeps* Broderip, 1833, to choose from. My best were clusters of two and three and a gnarly old, but beautiful, monster. I also found large beautiful *Periglypta multicostata* (Sowerby, 1835); *Ventricolaria isocardia* (Verrill, 1870); *Chlamys lowei* (Hertlein, 1935); *Pecten vogdesi* Arnold, 1906 (uncommon as a result of overfishing by the Mexicans); *Lyropecten subnodosus* (Sowerby, 1835) with six *Chama venosa* Reeve, 1847, attached to its dorsum; *Semele junonia* (Verrill, 1870); *Megapitaria aurantiaca* (Sowerby, 1831); *Pinna rugosa* Sowerby, 1835; *Cardita crassicostata* (Sowerby, 1825); *Cardita megastropha* (Gray, 1825); several beautiful color variations of *Papyridea aspersa* (Sowerby, 1833) plus an incredibly large cluster of *Ostrea fisheri* Dall, 1914, with different shades of browns and purples. This last species is probably the most common large bivalve in this area of the Gulf and one of the most attractive when a good specimen is cleaned properly.

Besides being lucky in finding lobsters and halibut, this trip also provided some of my more exciting gastropod finds including three *Pterynotus pinniger* (Broderip, 1833) (Figures 1 and 2) which was my main objective on this trip. I found



Figures 1 and 2. *Pterynotus pinniger* (Broderip, 1833). Length: 63.2 mm (1) apertural view (2) dorsal view.

several *Muricanthus princeps* (Broderip, 1833) in clean condition; *Xenophora robusta* Verrill, 1870, dead but in good condition; several *Oliva* species including *Oliva porphyria* Linne, 1758; *O. spicata* Roding, 1798; and several *O. keleontina* Duclos, 1835. I also found *Terebra ornata* Gray, 1834 (common on clean sand at 100 feet); a 360 mm perfect *Fasciolaria princeps* Sowerby, 1825 (my best to date); *Cypraecassis coarctata* (Sowerby, 1825); *Cypraea annettae* Dall, 1909; dead *C. robertsi* (Hidalgo, 1906) and *C. cervinetta* Kiener, 1843, and a dozen species I still have not identified including cones and several "outrageous" bryozoan colonies with their hermit crab hosts.

As a result of finds on this trip I have found several possible world record-size shells, the sizes of which I have submitted to The Lost Operculum Club and the "World Size Records" supplement of Wagner and Abbott's Standard Catalog of Shells. These include an enormous 267 mm *Malea ringens* (Swainson, 1822); a 100.4 mm *Ventricolaria isocardia* (Verrill, 1870) and a huge 181 mm *Cymatium parthenopeum keenae* (Beu, 1970). I've found about a dozen of this impressive species now and each one I find always seems to be larger than the last. (Dave Mulliner is planning an article on *C. parthenopeum keenae* for a future issue of The Festivus.)

Hopefully, we will soon return to Puerto Escondido and I'll continue my education on bivalve siphons and see what else my luck brings.

CLUB NEWS

THE AUCTION/POTLUCK

The Club's annual Auction/Potluck will be held on April 15th. Wes Farmer has graciously offered his condominium Club House for this fun-filled event again this year. (A map will be included in the April issue of The Festivus.)

Your quality specimen shells are much needed to make this auction a success. A beautiful *Cypraea aurantium* Gmelin (golden cowrie) and a monster-size *Syrinx aruanus* (Linne) (the giant Australian trumpet) have already been donated. Please bring your donation to the March meeting or to a board member or arrange for its pickup with a Club member. Besides being the favorite event of the year, it is the Club's only fundraiser which supports projects such as The Festivus, student awards, and donations to scientific publications.

DUES ARE DUE

The is the last issue of The Festivus for those who have not paid their dues. To be included on the 1989 membership roster, dues must be received by the March meeting.

CLUB COMMITTEES

Below are listed the Club Committees and their members for 1989. Note that two committees lack volunteers. If you are willing to help on one of these, please contact Larry Buck at 792-5404.

Library: Margaret Mulliner, Chairperson
Rick Negus
Historian: Linda Hutsell
Mentor Parliamentarian: Dave Mulliner
Greeters: Adrian and Sherry Valli
Botanical Garden Foundation Rep: Wes Farmer
Hospitality:
Telephone:

THE SANIBEL ISLAND SHELL MUSEUM

Sanibel Island's Shell Museum and Research Foundation, Inc. has retained the services of Dr. R. Tucker Abbott for a two year period as Founding Director of the proposed shell museum. As Founding Director he will help plan and design the facility, which in addition to shell exhibits, plans to maintain a computerized index to the world's popular and scientific literature and establish a color-slide bank of photographs of type specimens, living animals and habitats which will be available to students, writers and publishers.

THE FESTIVUS
A publication of the San Diego Shell Club

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MEMBERSHIP AND SUBSCRIPTION
Annual dues are payable to San Diego Shell Club. Single member: $10.00; Family membership: $12.00; Overseas (surface mail): $12.00. Overseas (air mail): $25.00. Address all correspondence to the San Diego Shell Club, Inc., c/o 3883 Mt. Blackburn Ave., San Diego, CA 92111 Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

PROGRAM

COME TO THE AUCTION/POTLUCK!

Saturday evening, April 15th
6:00 PM ---?
For details see page 39 and map on last page.

There is no regular meeting this month.

CONTENTS

BOOK NEWS

A CLASSIFICATION OF THE LIVING MOLLUSCA
Assembled by: Kay Cunningham Vaught
Edited by: R. Tucker Abbott and Kenneth J. Boss
Published by: American Malacologists Inc. 1989
xii +189 pages
Price: $17.00 plastic comb binding; $21.00 hardbound, sewn
(plus $2.00 mailing. P.O. Box 1192 Burlington, MA 01803)

In 1980 Kay Vaught published her useful 93-page work, AN OUTLINE OF CLASSIFICATION OF LIVING SHELLED MARINE MOLLUSKS. Now this author has greatly expanded her original work in her new CLASSIFICATION which includes a systematic listing of the supraspecific names in all the living Mollusca-- terrestrial, freshwater and marine.

This new book, a result of ten years of careful research, lists over 15,300 named taxa arranged in systematic order based on current information. A two-page addenda of taxa not included in the outline precedes the 44-page index to all the listed names and the major references consulted for each superfamily are located throughout the CLASSIFICATION in the sections to which they apply.

The author has consulted widely with professional malacologists in preparing this work which will certainly become a necessary tool for the advanced amateur and the professional malacologist in curating their collections. While differences of opinion concerning some interpretations are to be expected in such an ambitious work, this reviewer agrees wholeheartedly with the following statement quoted from the Editorial Preface. "We can now thank an enthusiastic amateur malacologist for undertaking this useful and enormous compilation.... The field of malacology and the community of private mollusk collectors owe Kay Vaught a debt for her contribution and praises for her accomplishment."

Carole M. Hertz

NOTICES OF NEW PUBLICATIONS

SEA OF CORTEZ MARINE INVERTEBRATES, A GUIDE FOR THE PACIFIC COAST, MEXICO TO ECUADOR
By: Alex Kerstitch
Published by: Sea Challengers. 1989
120 pages, 7X9 inches, 283 color plates
Price: $2.50 paperback

"all-color field guide to the subtidal marine invertebrates of the Sea of Cortez region...283 species of invertebrates, including 8 sponges, 37 corals, anemones and their relatives, 11 worms, 109 snails, clams, nudibranchs and octopi, 35 starfish, urchins and cucumbers, and 77 crabs, shrimps and lobsters."

COMMON AND SCIENTIFIC NAMES OF AQUATIC INVERTEBRATES FROM THE UNITED STATES AND CANADA: MOLLUSKS. American Fisheries Society Special Publication 16
D.D. Turgeon, Chair. 1988
277 pages and 12 color plates
Price: $30.00 (cloth), $24.00 (paper)

"Compiled in cooperation with the Council of Systematic Malacologists and the American Malacological Union, this new standard of nomenclature covers the 5,700 marine, freshwater, and terrestrial mollusks of the USA and Canada."

HOMALOCANTHA SCORPIO, (LINNE, 1758)

BARBARA W. MYERS and ANTHONY D'ATTILIO

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San Diego Natural History Museum,
San Diego, California 92112

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Recently a well preserved specimen of *Homalocantha scorpio* (Linne, 1758) collected in tangle nets off Bohol Island, Cebu, Philippines at a depth of 75 to 100 m, with four digitations on the outer lip, was figured by Foster and Glass (1984), and subsequently borrowed for study. This unusual specimen prompted our re-examination of the species (Figure 1).

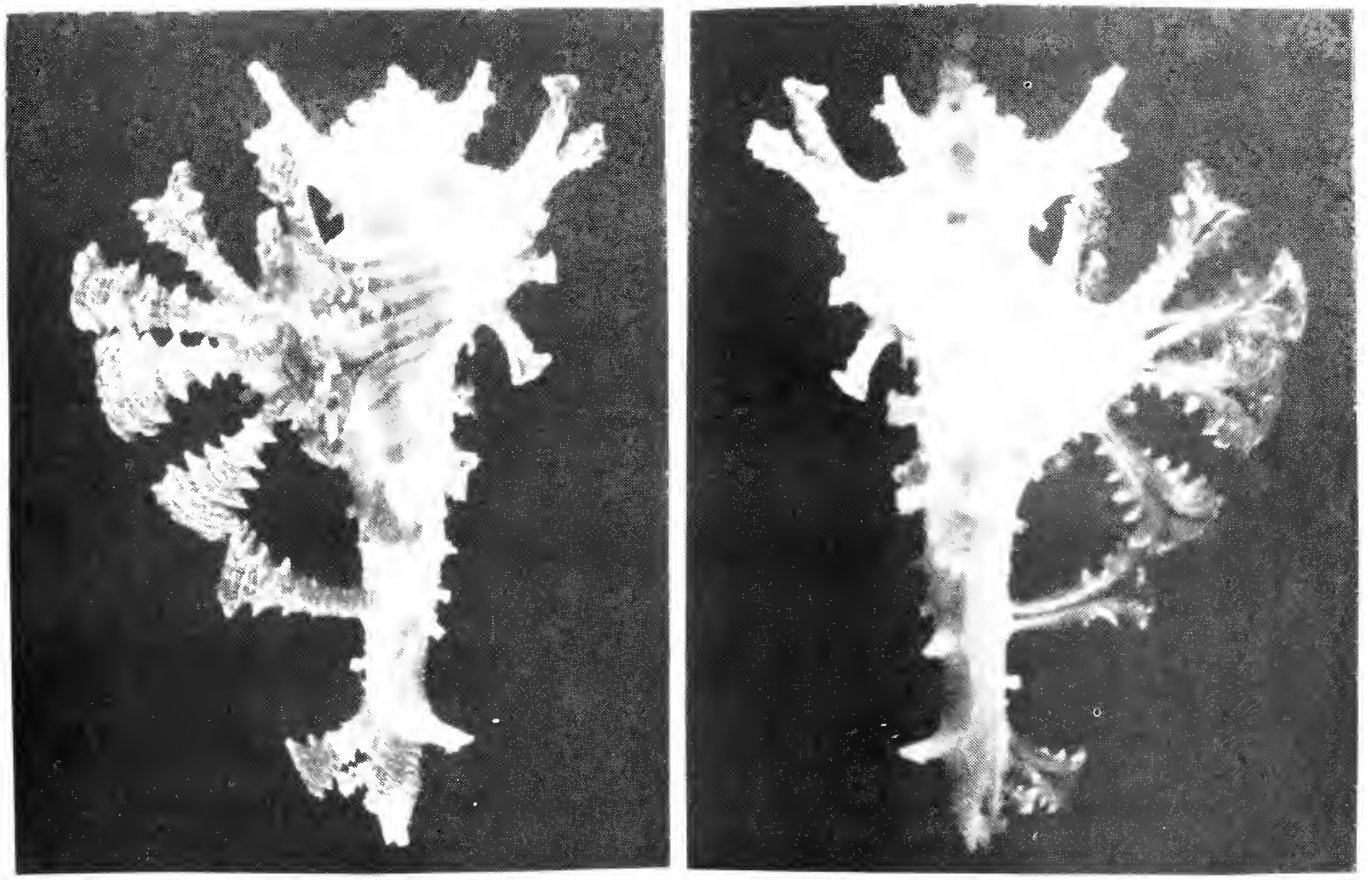

Figure 1. *Homalocantha scorpio* (Linné, 1758). Dorsal and ventral views of specimen from Bohol Island, Cebu, Philippines collected in tangle nets, 75 to 100 m. Coll. of R. Foster and C. Glass. 31.5 mm Photos: D. Mulliner

Murex scorpio was described by Linne in 1758:747 in the 10th edition of the Systema Naturae. His brief description, "M. testa quadrifariam frondosa, spira capitata, cauda truncata," was supplemented by references to three figures. The first figure he referred to was Rumphius (tab. 26, fig. D). Rumphius published "D'Amboinche Rariteitkamer..." in 1705 and in "Thesaurus imaginum Piscium Testaceorum..." published in 1711, the plates from D'Amboinche Rariteitkamer were

reprinted with explanations (Boss, 1988). The San Diego Natural History Museum's copy of Rumphius' Thesaurus imaginum Piscium...is dated 1739. This figure appears reversed as do most of the figures on that tablet. The specimen is lying on its side with the aperture face down. The shell is slender with an excavated spire, but it is not clear whether there are four or five digitations on the outer lip (Figure 2). The second figure reference was Gualtieri (1742:tab. 37, fig. M) (Figure 3). This figure has a large bulbous body whorl and a conical spire, unlike *Homalocantha scorpio*. It has four palmate digitations on the outer lip. The third figure was from D'Argenville (1742:tab. 19, fig. D). The San Diego Natural History Museum's copy is a later edition and *H. scorpio* is figured on tab. 36, fig. G-3 (Figure 4). This figure has four digitations on the outer lip and a spire somewhat constricted and excavated.

Figure 2. *H. scorpio*, after Rumphius (1711, tab. 26, fig. D)

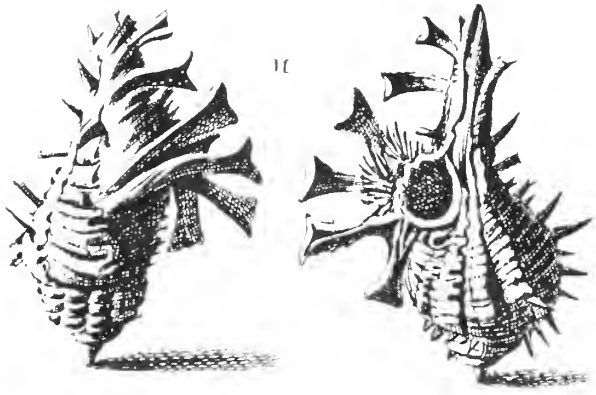

Figure 3. *H. scorpio*, after Gualtieri (1742: tab. 37, fig. M)

Figure 4. *H. scorpio*, after D'Argenville (1742, tab. 36, fig. G-3)

In the 12th edition of the Systema Naturae (1767:1215), Linne added Seba (1734-65: tab. 77, figs. 13-16) as a reference (Figure 5). These figures are similar to D'Argenville with four digitations on the outer lip. Seba alone shows both an apertural and dorsal view of a specimen and we can count five varices. Two other specimens shown are dorsal views and both have four digitations on the lip.

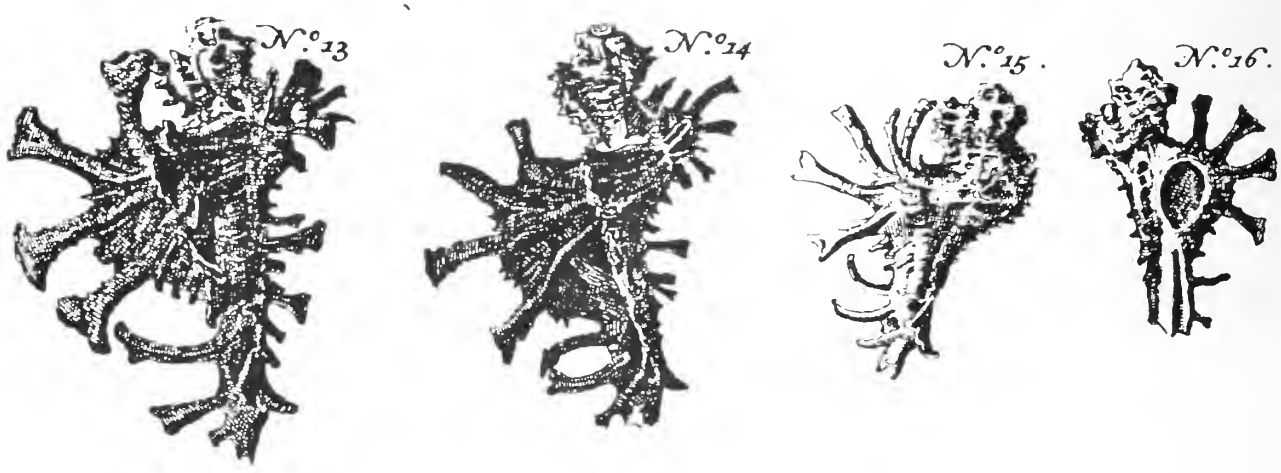

Figure 5. *H. scorpio*, after Seba (1734-65, tab. 77, figs. 13-16)

All the figure references supplied by Linné have four palmate digitations on the labial lip. The specimens referred to *H. scorpio* by recent authors (Fair, 1976;

Radwin and D'Attilio, 1976; Springsteen and Leobrera, 1986) have five digitations on the outer lip. Radwin and D'Attilio (1976) state that specimens from old (19th century) collections have four rather than five digitations.

Specimens of *H. scorpio* borrowed from the American Museum of Natural History, all from old collections formed more than 100 years ago, have four digitations instead of five.

AMNH 5971	1 specimen	Philippine Islands
AMNH 5972	1 specimen	Philippine Islands
AMNH 5973	2 specimens	Molucca Islands
AMNH 5976	2 specimens	Indian Ocean, ex Haines collection
AMNH 5978	1 specimen	Molucca Islands, ex Witthaus collection
AMNH 5979	1 specimen	Mauritius, ex Witthaus collection
AMNH 47205	2 specimens	Philippine Islands, ex F. Constable collection
AMNH 98518	1 specimen	Philippine Islands, ex R.L. Stuart collection

In addition to the variability in the number of digitations, further study of specimens in the San Diego Natural History Museum and the Don Pisor collection as well as the many specimens borrowed from the American Museum of Natural History and the Academy of Natural Sciences of Philadelphia showed the spire to be moderately high and deeply excavated or low with only moderate excavation (Figures 6 and 7).

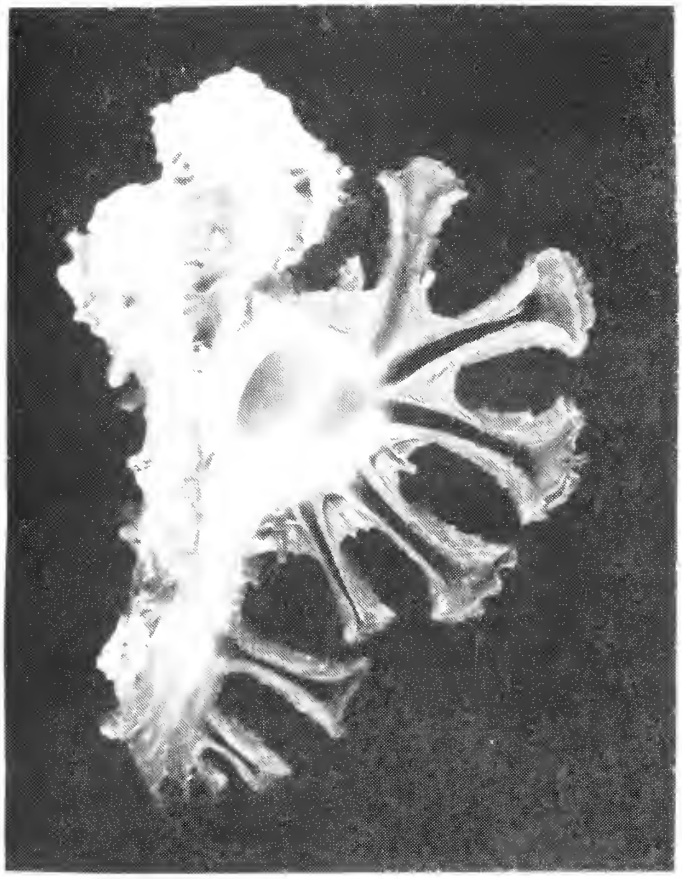

Figure 6. *H. scorpio*, ventral view of specimen in the collection of D. Pisor. Photo: D. Mulliner

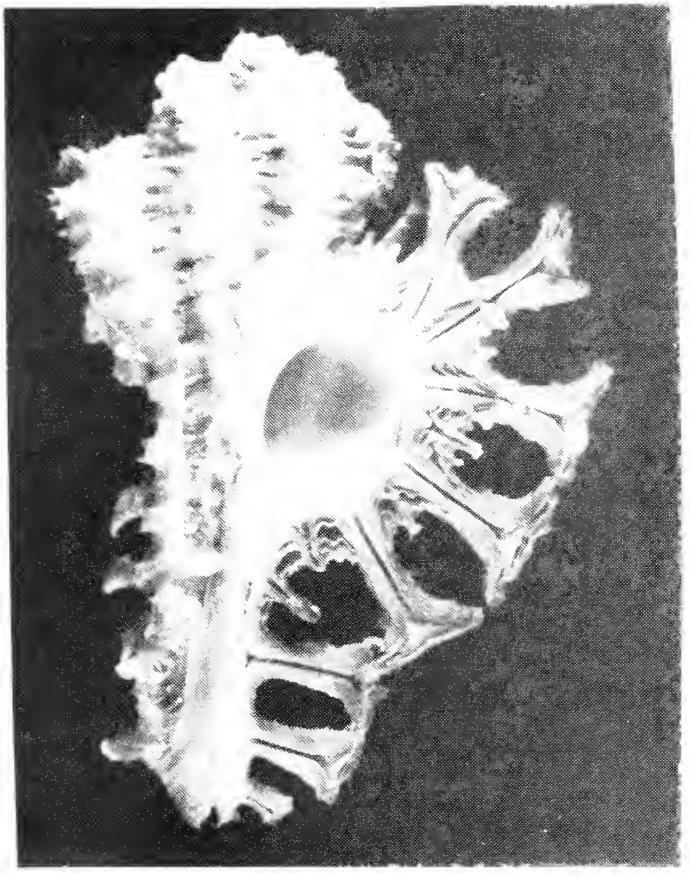

Figure 7. *H. scorpio*, ventral view of specimen in the collection of D. Pisor. Photo: D. Mulliner

The body whorl may be broad and robust or slender and delicate (Figures 8 and 9). The color can be black, brown or white. We could find no consistent differences to separate specimens with four digitations on the outer lip from those with five digitations or those with a high, excavated spire from those with a low moderately excavated spire. Perhaps this unusual specimen from Bohol Island, Cebu is a deep water form of the species. See the article on this specimen by A. D'Attilio in this issue.

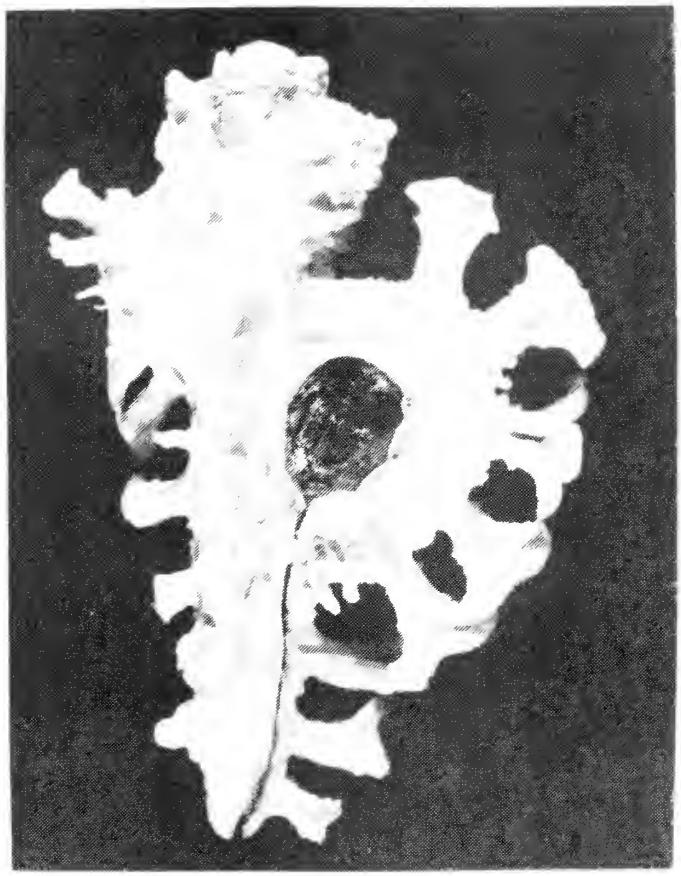

Figure 8. *H. scorpio*, ventral view of specimen SDNHM 73667.
Photo: D. Mulliner

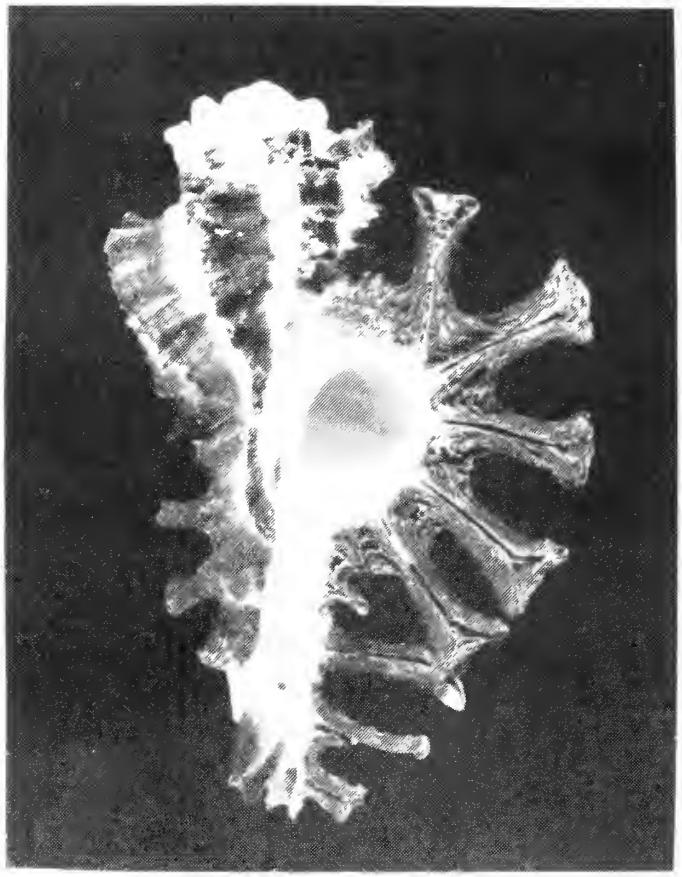

Figure 9. *H. scorpio*, ventral view of specimen SDNHM 50825
Photo: D. Mulliner

Radwin and D'Attilio (1976) placed *Murex varicosus* Sowerby (1834, pl. 65, fig. 49) in the synonymy of *Homalocantha scorpio*, but Sowerby's figure does not resemble *H. scorpio*. Further, *Murex varicosus* Sowerby is a homonym of Brocchi (1814) and Renier (1804). Holten (1802) also used this taxon (Vokes, 1971). Fair (1976) placed *M. varicosus* Sowerby in the synonymy of *M. digitatus* Sowerby, 1841 and that seems to be the correct placement; with the name *M. varicosus* preoccupied, *M. digitatus* would be the next available name. The placement of *M. digitatus* in the synonymy of *Homalocantha scorpio* by Radwin and D'Attilio as well as their placement of *Murex fauroti* Jousseaume, 1888, is now considered in error. Fair (1976, fig. 252, 252a) illustrates the type of *M fauroti* and it appears distinct from *Homalocantha scorpio*.

ACKNOWLEDGMENTS

We wish to thank the San Diego Natural History Museum for use of the scientific library as well as the molluscan collection and other facilities and equipment of the Department of Marine Invertebrates.

We also wish to thank Robert Foster and Charles Glass of Santa Barbara, California for the loan of their unusual specimen of *Homalocantha scorpio*. Donald Pisor of San Diego, California kindly lent several specimens of *H. scorpio* from his personal collection for this study. The American Museum of Natural History and the Academy of Natural Sciences of Philadelphia kindly lent us a number of specimens of *H. scorpio* from their extensive collections. The photography in this paper was done by David K. Mulliner of San Diego for which we thank him.

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Editor's note: In a January 15, 1989 paper by Anthony D'Attilio and Sadao Kosuge in the Bulletin of the Institute of Malacology, Tokyo [2(8):125-129] three new species of *Homalocantha* from the Philippines are described.

Correction: In Larry Buck's article, "A Trip to Puerto Escondido" in the March issue of THE FESTIVUS, credit was not given to David K. Mulliner for the photographs of *Pterynotus pinniger*. Both the author and editor regret the omission.

ILLUSTRATIONS OF A DEEP WATER FORM OF HOMALOCANTHA SCORPIO (LINNE, 1758)

ANTHONY D'ATTILIO

2415 29th Street, San Diego, California 92104

A most unusually well-preserved specimen of *Homalocantha scorpio* (Linné, 1758) was studied through the courtesy of Robert Foster of Santa Barbara, California. This 31.5 mm specimen with five whorls was collected south of Bohol Island, P.I. in tangle nets in approximately 75 to 100 meters and was illustrated by Foster and Glass (1984,12(4):54, fig. 12).

Further illustrations are provided herein by means of camera lucida drawings at 25 to 50 times enlargement through a "Wild" microscope. These enlarged drawings show the protoconch, details of the shell and the spinose formations.

LITERATURE CITED

FOSTER, R. and C. GLASS
1984. *Homalocantha* a pictorial addendum. Conchologists of America Bull. 12(4): 53-55, 20 figs.

Figure 1. *H. scorpio*, the protoconch of 2¼ conical whorls, the last whorl with a mid-body rounded cord. X25.

Figure 2. *H. scorpio*, a dorsal view of the four spines on the labial flange, the posterior two appearing to have a common base. They are unusually well preserved. The most posterior spine is smallest, the three anterior spines largest. The overall appearance of each spine is of a series of cup-like scales, each growing out of the one below, spreading laterally above, and turning at their extremities from the dorsal to the ventral side. In addition, the edge of each scale is wavy or scalloped. The fine striae spread fan-like on the surface of the scale and terminate at the scalloped perimeter.

Figure 3. *H. scorpio*, showing the ventral surface of the spines narrowly open below, but open much wider distally. At the distal edge the dorsal sculpture overlaps ventrally.

Figure 4. *H. scorpio*, a detail of the upper body whorl and spire. In this view the apertural flange is obscured.

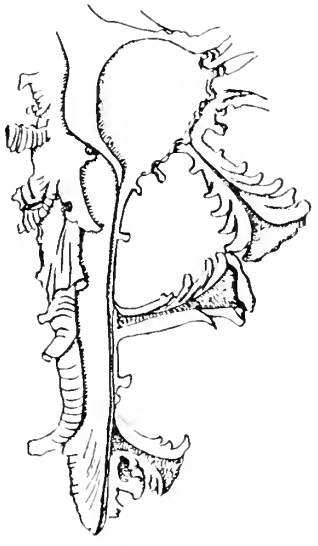

Figure 5. *H. scorpio*, detail of the aperture and canal.

IOTHIA LINDBERGI McLEAN, 1985 (GASTROPODA) DISCOVERED IN THE GULF OF CALIFORNIA

CAROL SKOGLUND

3846 E. Highland Avenue, Phoenix, Arizona 85018

Phenacolepas puntarene (Mörch, 1860) was reported from 183 meters (600 feet) off the northwestern end of Isla Smith (113°34'W; 29°6'N), Bahía de los Angeles, Gulf of California, Mexico by Skoglund (1988, fig. 9).

Dr. James H. McLean of the Los Angeles County Museum of Natural History wrote to say that the figured shell resembled *Iothia lindbergi* McLean, 1985. The specimens were sent to him. Dr. McLean's work with the radulae confirmed his identification. This extends the known southern range of *Iothia lindbergi* from Isla Benito, off the outer coast of Baja California into the Gulf of California at Isla Smith.

The names on figure 9 and in the text on page 114 (Skoglund, 1988) should be corrected from *Phenacolepas puntarene* (Mörch, 1860) to *Iothia lindbergi* McLean, 1985.

LITERATURE CITED

McLEAN, JAMES H.
1985. Two new northeastern Pacific gastropods of the families Lepetidae and Seguenziidae. Veliger 27(3):336-338, 2 figs. (January 2).

SKOGLUND, CAROL
1988. Deep water shells from off Isla Smith, Bahía de los Angeles, Baja California, Mexico. Festivus 20(11):110-116, 10 figs. (November 10).

A NOTE ON MUREX (?HAUSTELLUM) RUTHAE E.H. VOKES, 1988

In a recent paper, "Muricidae (Mollusca: Gastropoda) of the Esmeraldas Beds, Northwestern Ecuador" [Tulane Stud. Geol. Paleo. 21(1):1-50, July 20, 1988] Dr. E.H. Vokes described the species *Murex (?Haustellum) ruthae* [pp. 18-21, pl. 1, figs. 4,5; pl. 2, figs. 1,2] as the Gulf of California species long known as *Murex elenensis* Dall, 1909.

According to Dr. Vokes, *M. elenensis* comes from Santa Elena Bay, Ecuador (type locality) to as far north as the Gulf of Nicoya. The northern form which "appears to be confined to the Gulf of California, usually in depths of 5 to 10 meters" is named *M. ruthae* in honor of the late Ruth Purdy, who had been a longtime member of the San Diego Shell Club. Dr. Vokes considers that *M. ruthae*, found in the Esmeraldas beds is "the ancestral form which has now retreated to the Gulf of California."

In her discussion, Dr. Vokes contrasts the two species with *M. ruthae* having a heavier larger shell with coarser sculpture and two, rarely three, intervarical nodes and longer, heavier, straighter spines which extend down the siphonal canal. *M. elenensis* has three to four intervarical nodes and the varices are more deeply excavated adaperturally. Dr. Vokes considers plate 11, figure 13 in Radwin and D'Attilio's 1976 "Murex Shells of the World" to be *M. ruthae*.

Carole M. Hertz

FOUR GRANT AWARDS ANNOUNCED

NEW COA GRAND AWARDS

Mollusk research grants for 1989 up to $1,500 per application are available to qualified persons undertaking Recent or fossil field or laboratory research work. The deadline for applications is May 10, 1989. Mail to Dr. R. Tucker Abbott, Chairman, P.O. Pox 2255, Melbourne, FL 32902-2255. Applicants must outline the proposed project, amounts and purposes for which the award will be used, including requested supplies, expendable equipment, living and/or travel expenses, or publication and illustration costs. Please submit a short biography, educational status or pertinent job experience, and a letter of recommendation from a scholastic or professional source. Awards are judged by the COA committee by June 1, and are made only to citizens or permanent residents of the Americas, and do not cover salaries, overhead, permanent equipment, conference or meeting costs. If awarded, a brief written account of the completed phase of the project is expected.

JACKSONVILLE SHELL CLUB GRANT-IN-AID

The Jacksonville Shell Club announces a $500.00 grand-in-aid to a scholar who has demonstrated an interest and competence in natural science. The applicant must be enrolled in a program of study at an accredited U.S. institution at the college or post-graduate level. Special consideration will be given to those who are pursuing a curriculum in systematics, evolution, ecology and malacology.

Applications will be accepted until May 1, 1989. Two letters of recommendation (one from the department head or advisor) and an academic transcript equivalent to the most recent year of study are required. Send with the application to: Harry Lee, M.D., Scholarship Committee, Jacksonville Shell Club, Inc., 709 Lomax St., Jacksonville, FL 32204.

DELAWARE MUSEUM OF NATURAL HISTORY ANNOUNCES TWO AWARDS

The Department of Malacology of the Delaware Museum of Natural History announces the availability of two awards of up to $500.00 each for students of systematic malacology.

These awards provide support for students conducting systematic studies of Mollusca (leading to publication) who require access to collections, laboratory and library of the Delaware Museum of Natural HIstory (DMNH) Department of Malacology. Funds may be used for travel, subsistence and research costs. Applicants should submit a succinct research proposal (not more than two pages), a budget outline with indication of any matching funds, and a supporting letter from faculty advisor(s).

Application deadline is May 1, 1989. Write to Department of Malacology, Delaware Museum of Natural History, P.O. Box 3937, Wilmington, DE 19807

SMITHSONIAN FUNDS FOR MALACOLOGY STUDENTS

The Division of Mollusks, Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, announces the availablity of the Rosewater Fellow Award of $1,000. The award provides support for students conducting systematic study of the Mollusca (leading to publication) who require access to collections and libraries of the Division of Mollusks. Funds can be used for travel, subsistence, and research costs. Interested students should submit a succinct proposal of 1-2 pages including budget with indication of any matching funds, and a supporting letter from faculty advisor(s). Application deadline is April 15, 1989. Award will be announced on June 15, 1989.

CLUB NEWS

THE ANNUAL AUCTION/POTLUCK

Saturday evening, April 15th is the Club's annual Auction/Potluck--the Club's biggest social event and only fundraiser.

The Auction will again be held at the Clubhouse of Wes Farmer's condo complex at 3575 Ruffin Road and the festivities will begin at 6:00 P.M.

If you have not already donated shells to help support the Club or signed up for your potluck donation, please contact either Larry Buck (792-5404) or Carole Hertz (277-6259), It will be a great party. Don't miss it!!

FROM THE MINUTES - SAN DIEGO SHELL CLUB MEETING - FEBRUARY 16, 1989

The meeting was called to order at 7:35 P.M. by President Larry Buck. Following introductions, Ron McPeak presented the speakers for the evening, Ken and Marge Lindahl of The Golden Shell shop on Balboa Island who gave a fascinating slide show of their recent trip to Australia, New Zealand, Gauadalcanal and New Guinea. Following this, Tony D'Attilio gave a short but very interesting talk on the Typhidae. Ron McPeak announced that his new book, "The Amber Forest" was finally out.

Following the refreshment break, Kim Hutsell described the new Club pin that will soon be available and his wife Linda, the Club historian, requested information and photos about the Club from 1980 to the present.

Jules Hertz shared items of interest in the new books and periodicals that have been added to the Club library and Larry announced some important dates that are coming up: Club Auction on April 15th, shell bazaar at Larry's home on August 20th, and the Christmas party on December 2nd. Larry also circulated a list for possible hosts for a progressive dinner party contemplated for later this year. He also brought up the need for more volunteers at the COA convention, the formation of a local members' dive group and future field trips to Mexico and Santa Barbara.

Maria Goldstein brought the delicious cupcakes for the break and Ken Lindahl, our speaker, won the door prize.

Rick Negus

FROM THE MINUTES - SAND DIEGO SHELL CLUB MEETING - MARCH 16, 1989

Larry Buck welcomed members and guests including the Club's youngest and newest member, Dillon Valli born to Adrian and Sherry on February 8th. Bob Yin introduced our speaker of the evening, Ron McPeak, who shared his rich knowledge of the world beneath the kelp in his outstanding program, THE AMBER FOREST, based on a book by Ron McPeak, Dale Glantz and Carole R. Shaw. Ron took us on a marvelous slide show voyage within the mysterious kelp forest. The visual experience revealed the fierce intensity of kelp growth which spreads its living carpet over great areas of our local ocean. Ron spoke about the forming of new kelp and mentioned that up to 175 species of animals have been recorded living in one kelp holdfast. There were breathtaking photographs of about 2000 pectens attached to a kelp stalk, and 200-300 meters of red and purple urchins grazing on the dense canopies! Ron has managed to catch on film the unbelievably lavish fruitfulness of marine life forms within the amber forest. His book was available to interested members during the coffee break.

Ron's program was followed by Dave Mulliner's slides of the 1988 Christmas party. Thanks to Dave, the good memories returned and the slides will go into the Club library where members can check them our to show at home or to make duplicates.

Jules Hertz shared some recent publications in the Club library and Carole Hertz reported that we have already recovered half the cost of the latest supplement. Linda Hutsell reported on the progress of the historian's books and members were invited to sign up for a shell photography seminar to be hosted by Dave Mulliner at his home at 1:00 PM on April 2nd. A field trip to San Felipe is planned for the April 5th low tides and another on field trip on April 22nd to see Bob Foster's outstanding shell collection. Larry Catarius won the shell drawing and Linda LaGrange and Margenette Yeend supplied the delicious refreshments.

Wayne Reed

SAN DIEGO SHELL CLUB
Membership List - 1989

ABBOTT, R. TUCKER, 2208 South Colonial Dr., Melbourne, FL 32901
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WU, SHI-KUEI, U. of Colorado, Museum, Campus Box 315, Boulder, CO 80309-0315
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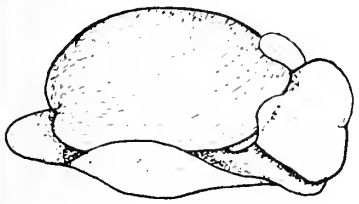
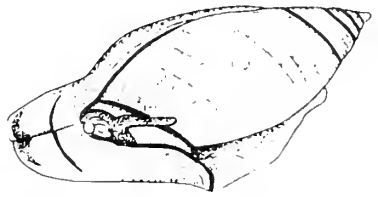
YIN, BOB, 1275 Torrey Pines Rd., La Jolla, CA 92037, 454-2342

SAN DIEGO SHELL CLUB



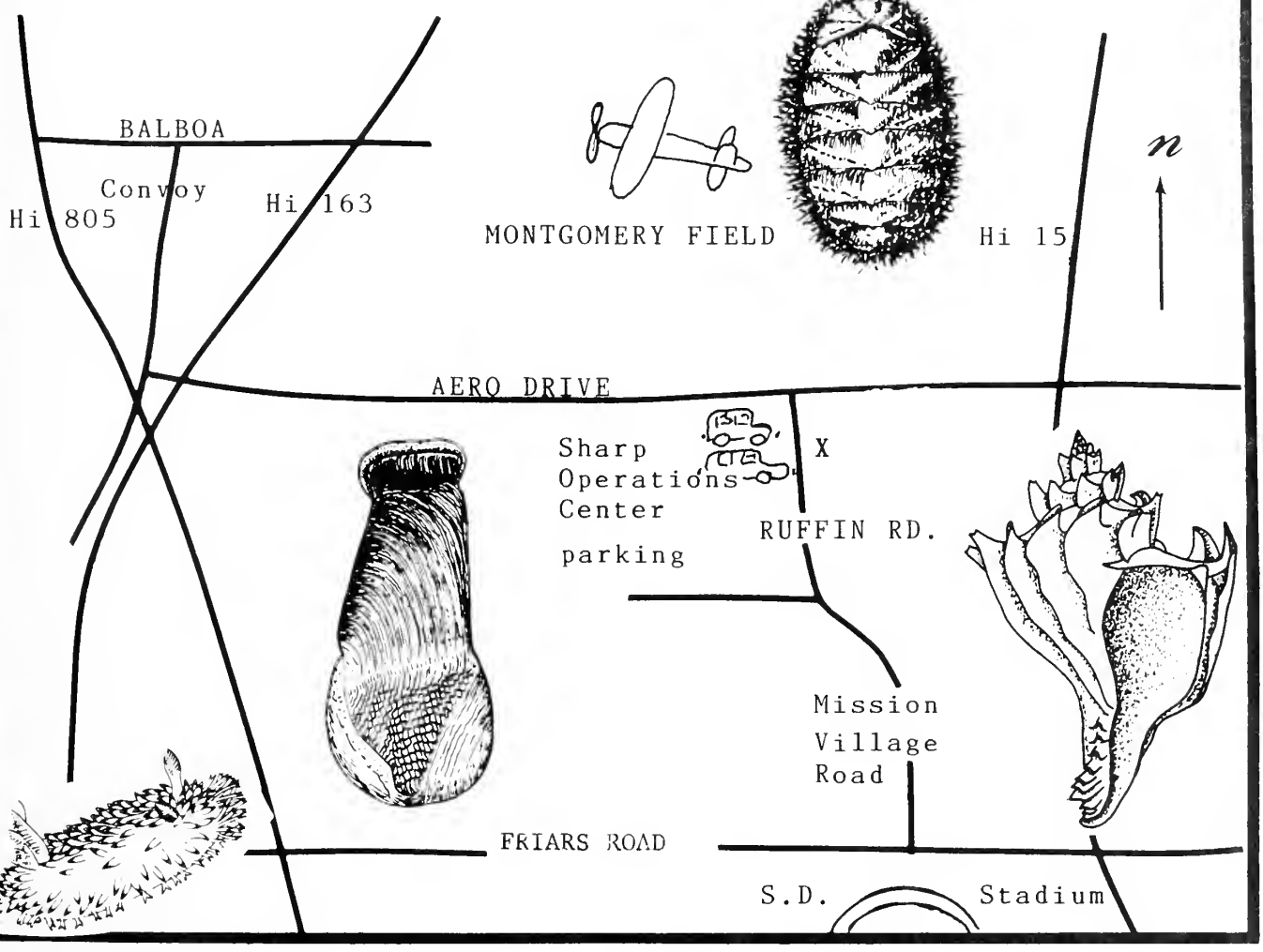
AUCTION/POTLUCK

APRIL 15, 1989



DIRECTIONS TO THE AUCTION: from 805: exit onto Balboa, east to Convoy, south to Aero Dr., east to Ruffin Rd., south about a block or two. Clubhouse on East side of street; park at Sharp Operations Center on West side.
From San Diego Stadium on Friars Road: up Mission Village Drive to Ruffin Rd., right turn or north about a half mile, parking on the west side of the street at Sharp Operations Center across from the Clubhouse.
THE ADDRESS: 3575 Ruffin Rd. at the Summer Hill Clubhouse.
TIME: 6:00 P.M. -???

*REMEMBER TO BRING: You'll need to bring chairs, your potluck dish with eating utensils. Also bring serving utensils for your dish. And come ready to have fun!



THE FESTIVUS

A publication of the San Diego Shell Club

ISSN: 0738-9388

Volume: XXI | May 11, 1989 | Number: 5

MEMBERSHIP AND SUBSCRIPTION

Annual dues are payable to San Diego Shell Club. Single member: $10.00; Family membership: $12.00; Overseas (surface mail): $12.00. Overseas (air mail): $25.00. Address all correspondence to the San Diego Shell Club, Inc., c/o 3883 Mt. Blackburn Ave., San Diego, CA 92111 Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

PROGRAM

MY LAST SEVEN YEARS----AT COCOS ISLAND

Dr. Donald R. Shasky will give a slide presentation on his seven trips to the remote and rarely visited Cocos Island, Ecuador, where he dived and dredged for shells. Don will also bring in a display of shells he collected at Cocos Island. This is a program not to be missed.

Shell family of the month: Muricidae. Bring in your murexes for display.

Meeting date: May 18, 1989

CONTENTS

CLUB NEWS

THE ANNUAL AUCTION/POTLUCK

The annual Auction/Potluck on Saturday evening April 15th was a rip-roaring success. The clubhouse at Wes Farmer's condominium bulged with members and guests and the atmosphere was one of heightened excitement as members, armed with their auction lists, studied the specimen shells to be sold and the vast amount of silent auction material which filled the adjacent room of the clubhouse. Attendees were kept busy checking on silent auction items they hoped to win later that evening, while examining the voice auction specimens.

The potluck dinner offerings preceding the main event were delicious--and bountiful and along with Dave's punch and soft drinks, everyone was in a mellow mood--perfect for bidding.

Soon after 8:00 P.M., auctioneers Carole Hertz and Larry Buck were facing the spirited group who had a most beautiful selection of shells on which to bid. And bid they did! The shells for auction had never been better and, in addition, a Tony D'Attilio drawing and several fine books were on the block. With just a short break mid-evening, the weary bidders were not finished their work until just after mid-night. It was great fun, very tasty, and the biggest profits yet.

Our special thanks to Wes Farmer for hosting the Auction--the third Club party he has held in less than two years! And our sincere appreciation to those who generously donated the shells and shell-related items to be auctioned. They are acknowledged below in alphabetical order. But last and by no means least, our thanks to our members and guests who bid on all those beautiful things and made it possible for the Club to continue with its projects in 1989.

Marge & Hugh Bradner
Twila Bratcher
Billee & Bob Brown
Toni & Larry Buck
Debbie & Larry Catarius
Phillip Clover
Rose & Tony D'Attilio
Wes Farmer
Joyce Gemmell
Maria & Raymond Goldstein
Ian Hamilton
Holly & Mike Hansen
Carole & Jules Hertz
Michael Hollmann
Ellen & John Jackson
John Johnson
June & Bob King
Linda & John LaGrange
Marge & Ken Lindahl
Suzanne Mathews
Margaret & Dave Mulliner
Rick Negus
Jeanne & Don Pisor
Marilyn & Wally Robertson
Don Shasky
Silver Sea
Dan Spelling
Doug Von Kriegelstein
Peggy Williams
Bob Yin

INADVERTENTLY OMMITTED FROM THE ROSTER

Brown, Billee & Bob, 6333 La Jolla Blvd., La Jolla, CA 92037, 454-5788

TOO LATE FOR THE ROSTER

Armstrong, Blair, 8009 Calle de la Plata, La Jolla, CA 92037, 459-7463
Bishop Museum, 1525 Bernice St., P.O. Box 19000-A, Honolulu, Hawaii 96817-0916
Grove, Marsha, 10687 Caminito Alvarez, San Diego, CA 92126, 566-0713
Hamilton, Ian, 6640 Linda Vista Rd., C-6, San Diego, CA 92111, 278-6213
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Vaught, Kay, 8648 E. Paraiso Dr., Scottsdale, AZ 85255
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CYCLOSTREMISCUS NODOSUS OF PILSBRY AND OLSSON, 1952

JOYCE GEMMELL,* CAROLE M. HERTZ** and BARBARA W. MYERS*

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In our study of the family Vitrinellidae in the Gemmell collection from the San Felipe area, Baja California Norte, Mexico, we have come upon many interesting problems. None proved more puzzling than the five Gemmell specimens which we considered conspecific with *Cyclostremiscus nodosus* of Pilsbry and Olsson, 1952, (*not C. nodosus* Carpenter, 1857). Figure 1a-c illustrates one of these specimens.

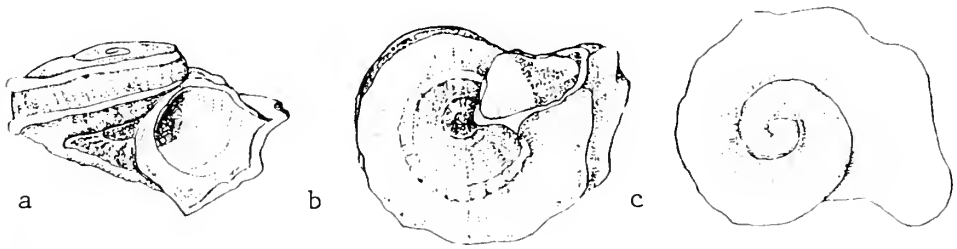

Figure 1a-c. *Turbo fluctuosus* Wood, 1828. Juvenile, 1.4 mm max. diam. Specimen in Gemmell collection we had identified as *Cyclostremiscus nodosus* of Pilsbry & Olsson, 1952 (*non C. nodosus* Carpenter, 1857).

Pilsbry and Olsson, (1952) figured what they considered to be a second specimen of *Cyclostremiscus nodosus* (Carpenter, 1857) found in the Carpenter collection in the Redpath Museum, McGill University, Montreal, Canada (cat. no. 3977) (Figure 2). However, Carpenter (1857) stated that he had only one immature specimen from Mazatlan (Figure 3). It is our conclusion, based on examination of the original

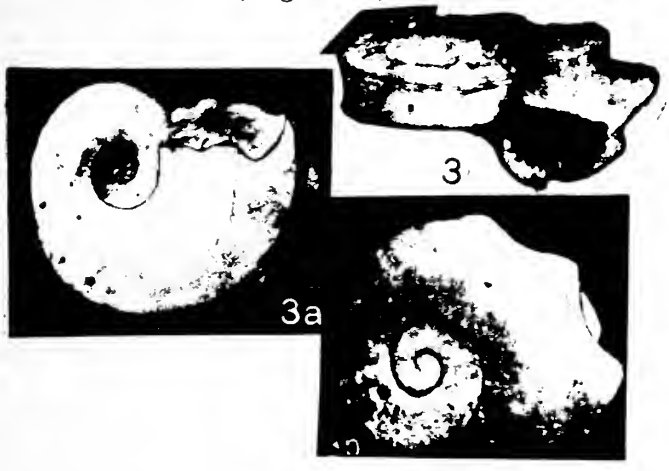

Figure 2. *C. nodosus* of Pilsbry & Olsson, 1952. 1.3 mm max. diam. After Pilsbry & Olsson, 1952. Specimen from the Carpenter Collection, Redpath Museum (cat. no. 3977).

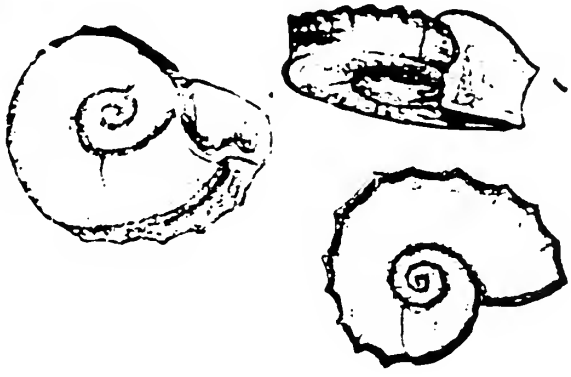

Figure 3. *C. nodosus* (Carpenter, 1857). Holotype, ".003 latitude" After Brann (1966).

figures (Figures 2 and 3) and descriptions, that the two specimens are significantly different. Carpenter's specimen bears evenly spaced nodes on the upper keel, whereas the Pilsbry and Olsson specimen has only three large nodes on the final portion of the upper keel.

The Gemmell specimens with a maximum diameter of 1.4 mm (Figure 1a-c) differ by only 0.1 mm from the Pilsbry and Olsson specimen which has a maximum diameter of 1.3 mm (Figure 2). The Gemmell specimen and the Pilsbry and Olsson specimen have 2 3/4 whorls, are widely umbilicate, and both show sculpture of prominent nodes on the final portion of the "body whorl."

At this point we decided that the Pilsbry and Olsson specimen might need a new name and we began re-examining the Gemmell material with this in mind. On placing these specimens under the microscope at high magnification (25X) for another look, we observed that one 1.2 mm shell had several faint spots of color. This was a surprise, since vitrinellids are glassy to opaque-white.

We now had to reconsider the placement of these five specimens. We considered as alternatives the archaeogastropod families Trochidae, Liotiidae and Turbinidae and it was in the Turbinidae that we found our answer. A Gemmell collection growth series of 29 specimens of *Turbo fluctuosus* Wood, 1828, from 1.5 to 2.4 mm maximum diameter was studied and revealed the progression from vitrinelliform shape to that of Turbinidae (Figures 4-6). The juvenile *Turbo fluctuosus* shell becomes imperforate (Figure 6), the large nodes disappear, the flattened whorls give way to a rounded profile and color becomes more evident (Figure 5). The five Gemmell specimens thought to be vitrinellids are juvenile *Turbo fluctuosus*, which species has a discontinuous distribution from Cedros Island on the outer coast of Baja California through the Gulf and south to Banderas Bay and the Tres Marias Islands; and from La Plata Island, Ecuador to Paita, Peru (McLean *in* Keen, 1971).

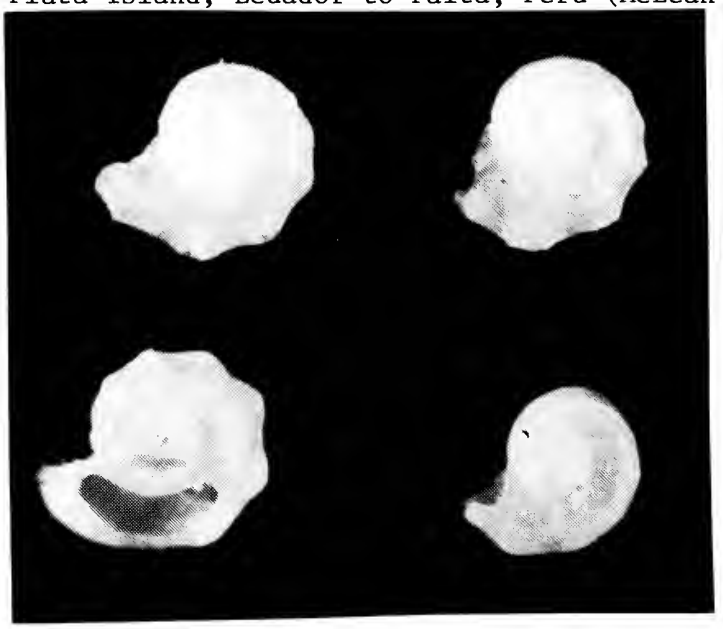

Figure 4. *Turbo fluctuosus*, growth series, 1.1-1.4 mm max. diam. Preliminary identification of these specimens in the Gemmell collection was *Cyclostremiscus nodosus* of Pilsbry & Olsson, 1952 (*non* Carpenter, 1857). Photo: D. Mulliner

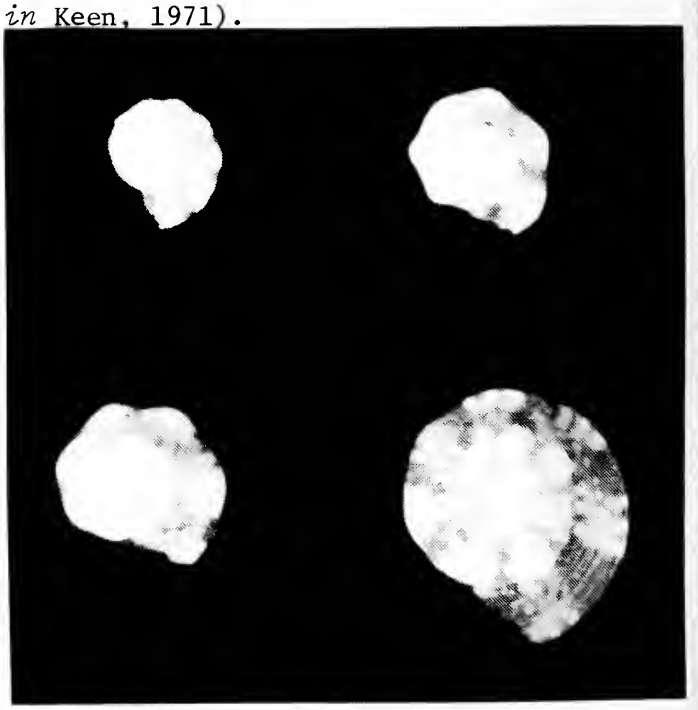

Figure 5. *T. fluctuosus*, Gemmell collection growth series, 1.5-2.4 mm max. diam. These somewhat larger specimens had been correctly identified as *T. fluctuosus*. These specimens show color. Photo: D. Mulliner

In basal view, the Gemmell specimens (Figure 1) do not agree with the Pilsbry and Olsson specimen (Figure 2) because "part of the penultimate whorl is exposed" in the Pilsbry and Olsson specimen but not in the Gemmell material (McLean, written comm.). In the opinion of Dr. James H. McLean, of the Los Angeles County Museum of Natural History, the Pilsbry and Olsson specimen is a juvenile *Astraea* although both *Astraea* and *Turbo* "are initially bicarinate and flat spired." However, Dr. McLean notes that "in P & O's figure, in basal view, part of the penultimate whorl is exposed and the peripheral projections of the uppermost cord are more acute." We confirmed this by examining a growth series of five specimens of juvenile *Astraea undosa* (Wood, 1828) in the B.W. Myers collection. The specimens, from 1.7 to 3.7 mm maximum diameter, which exhibited the aforementioned features also showed an open umbilicus until reaching a diameter of 3.0 mm (Figure 7a-d).

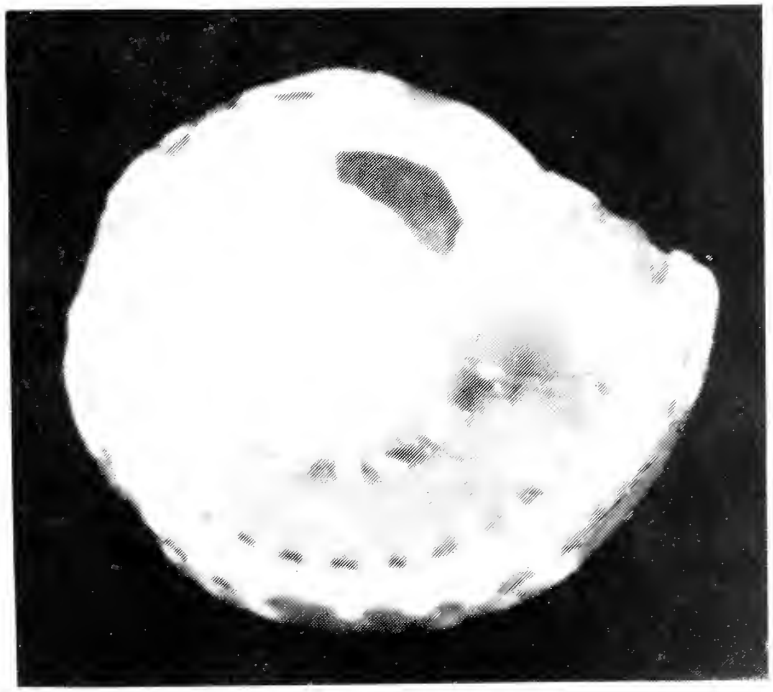

Figure 6. *Turbo fluctuosus*, base of largest specimen in Figure 5 (2.4 mm) showing imperforate base. Photo: D. Mulliner

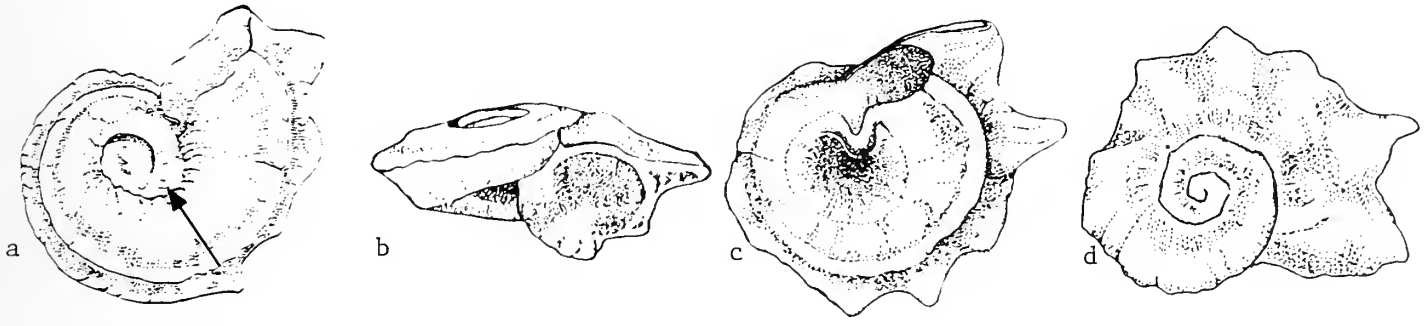

Figure 7a-d. *Astraea undosa* (Wood, 1828). (a) basal view of a 1.9 mm max. diam. specimen showing exposure of the penultimate whorl (at arrow). (b-d) three views of a 2.4 mm diameter specimen in the B.W. Myers collection showing the flat spired bicarinate shell and enlarged projections. The basal view of this specimen in (**c**) shows the beginning of closure of the umbilicus.

It is our conclusion that the Gemmell specimens under discussion are juvenile *Turbo fluctuosus* and that the supposed Carpenter specimen figured by Pilsbry and Olsson (1952) as *Cyclostremiscus nodosus* is not a vitrinellid but a turbinid, most likely an *Astraea*.

ACKNOWLEDGMENTS

We wish to thank the San Diego Natural History Museum for the use of the collection, library and facilities in the Department of Marine Invertebrates. We

thank James H. McLean for his comments and helpful suggestions and for the loan of comparative material as well as for courtesies extended to us at the LACM. Donald R. Shasky and Carol Skoglund also lent additional study material for which we are grateful. David K. Mulliner kindly photographed these minute specimens for which we thank him.

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THE AMU/WSM AND COA HOLD ANNUAL MEETINGS IN SOUTHERN CALIFORNIA NEXT MONTH

The Western Society of Malacologists (WSM) and the American Malacological Union (AMU) will hold a combined annual meeting in Los Angeles from June 25-30, 1989 at the Davidson Conference Center on the campus of the University of Southern California. Two symposia [Pelagic Gastropods, convened by Roger R. Seapy and Systematics and Evolution of Western North American Land Mollusks, convened by F.G. Hochberg and Barry Roth], contributed papers, and other events such as a book and shell auction and reprint sale, shell bourse, field trips and Presidents' reception are planned. For further information contact either AMU President James H. McLean (213 -744-3377) or WSM President Hans Bertsch (213-372-4436).

The Conchologists of America will be holding its annual convention in San Diego from June 19-23, 1989 at the Holiday Inn at the Embarcadero. Convention highlights include a Welcome Party hosted by the San Diego Shell Club, program meeting sessions, field trips and tours, dealers' bourse, auction and banquet.

For further information contact Registration Chairman Maria Goldstein (619-562-5459) or Convention Chairman Don Pisor (619-234-0249).

A FURTHER NOTE ON THE TAXONOMY OF MUREX PERMAESTUS HEDLEY, 1915, A JUNIOR SYNONYM OF MUREX CAPUCINUS LAMARCK, 1822

ANTHONY D'ATTILIO

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In a previous paper (D'Attilio, 1988) I considered *Murex permaestus* Hedley, 1915, a junior synonym of *Murex capucinus* Lamarck, 1822, and concluded that on the basis of shell morphology and radula, the placement of this species remained in question.

In a recent letter, Dr. Emily H. Vokes brought to my attention that a generic taxon had been proposed for *Murex capucinus*. The taxon is *Rhizophorimurex* Oyama, 1950, with *Murex capucinus* Lamarck, 1822, as type by original designation. Oyama (1950) and Vokes (written comm. January 1989) place *M. capucinus* in *Rhizophorimurex* as a subgenus of *Chicoreus* Montfort, 1810. However, the radular characters (D'Attilio, 1988, fig. 5) leave its placement in *Chicoreus* not entirely resolved.

A lectotype for *M. capucinus* was selected by Cernohorsky (1971, fig. 1) from the Lamarckian Collection in the Geneva Museum (lectotype 1099/23) and this lectotype was referred by him to *Murex torrefactus* Sowerby, 1841. After further examination of a photograph of the 124.7 mm lectotype of *M. capucinus* taken by Mr. Cernohorsky (and sent to me by Dr. Vokes who received it from Mr. Richard Petit) I agree with Dr. Vokes (written comm.) that Mr. Cernohorsky was mistaken in his identification and the shell is *M. capucinus* of authors.

Although *Rhizophorimurex* was cited in Radwin and D'Attilio (1975), it was inadvertently omitted in Radwin and D'Attilio (1976). Perhaps the publication of this generic taxon in a geological journal accounts for its lack of common usage.

ACKNOWLEDGMENTS

I wish to thank Emily Vokes for making the photograph of the lectotype of *M. capucinus* available to me for study and for her always stimulating discussions on taxonomic matters. My appreciation also to Mr. Cernohorsky whose slide of the lectotype made the examination possible. I am grateful to William K. Emerson who made the Oyama reference available to me.

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THE BARBARA GOOD MALACOLOGICAL LIBRARY RECEIVED

Rick Good, son of longtime Club member Barbara Good has donated his late mother's extensive malacological library to the Club "so that the books will be used and enjoyed." The Club is grateful for this generous donation in memory of Barbara Good.

All the donated material new to the Club library is being accessioned and some will be available for circulation at the May meeting. Those books and magazines which duplicate Club library holdings will gradually be sold and new books purchased with their proceeds.

Following is a listing of those books which become part of the Club library.

Abbottsmith, F. 1969. Multiform Australian Volutes and accompaniment.
Aiken & Fuller. 1970. The living Volutes of Africa
Allan, J. 1956. Cowry shells of world seas. 170 pp.
Bruynseels, J.K. 1975. Genus *Cymbium* Röding, 1798.
Burnay, L.P. & A.A. Monteiro. 1977. Seashells from Cape Verde Islands. pp. 4-85.
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Dall, W.H. & P. Bartsch. 1909. A monograph of west American pyramidellid mollusks. Smiths. Inst. Bull. 68. 258 pp.
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Hinton, A. 1978. Guide to Australian shells. 77 pls.
Keen, A.M. 1937. An abridged check list and bibliography of west North American marine Mollusca. 84 pp.
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Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

PROGRAM

DESERT SNAILS, LUNAR MOTHS AND OTHER BITS OF NATURAL HISTORY

Dr. Chris Barnhart, of the University of San Diego will discuss the natural history of terrestrial invertebrates, particularly the ways these animals survive the rigors of life on land. He will accompany his talk with slides.

Shell of the month: Conidae. Bring in your favorite cones to display.

Meeting date: June 15, 1989

CONTENTS

THE ANTHONY D'ATTILIO STUDENT RESEARCH GRANT IN MALACOLOGY

As part of its committment to the continued study of mollusks, the San Diego Shell Club is pleased to announce the Anthony D'Attilio Grant to support student research in malacology. This one-time award is made possible by a generous donation from Annita and the late Morris Levine, at whose request it is called the Anthony D'Attilio Grant.

ELIGIBILITY

1. Applicant must be a full-time student in a formal graduate degree program (Master's or Doctorate).
2. The thesis or dissertation topic must further knowledge of the systematics of the Mollusca. It may involve research on marine, land or freshwater mollusks worldwide. Research currently in progress or beginning in the 1990-1991 academic year will be considered.
3. The grant is available to candidates studying in U.S. academic institutions.

REQUIREMENTS

The following documents are required for each application:

1. A proposal, limited to three pages, which discusses the research project and details the work to be aided by this grant and its malacological significance.
2. A budget which outlines how these funds will be used.
3. A curriculum vitae or resume.
4. A letter of recommendation from the applicant's thesis advisor.
5. A list of grants and amounts which currently are being received or are anticipated to be received in the 1990-91 academic year.
6. An overview of the research project is to be sent or presented to the San Diego Shell Club on completion of the project.

PROJECTS TO BE CONSIDERED FOR FUNDING

Funds are available for the following items:

1. Purchase of research materials such as chemicals, photographic supplies, field collecting equipment, dissecting and optical accessories, computer supplies, etc.
2. Electron microscope usage fees and mainframe computer time.
3. Travel costs to visit museums or institutions which have collections or resources vital to the research topic.

AWARD

A single research grant of $1,000 is available.

APPLICATION DEADLINE

Completed applications must be received no later than 1 December 1989. The award will be announced by 15 January 1990.

Please send applications to: Anthony D'Attilio Grant
San Diego Shell Club
3883 Mt. Blackburn Ave.
San Diego, CA 92111

For further information, contact Carole Hertz (619) 277-6259

TWO TURRITELLA SPECIES IN SAN FELIPE, BAJA CALIFORNIA NORTE, MEXICO

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In April of this year, a group from the San Diego Shell Club visited San Felipe, Baja California Norte, Mexico for the low tides. On the morning of April 6th at a -5.4 foot low tide, an abundance of *Turritella anactor* Berry, 1957 (Figure 1) were seen on the mud flats north of town. Specimens were seen in the wet mud from the mid to low tide zones, and one specimen in the mid-tide area was observed laying eggs (Figure 2).

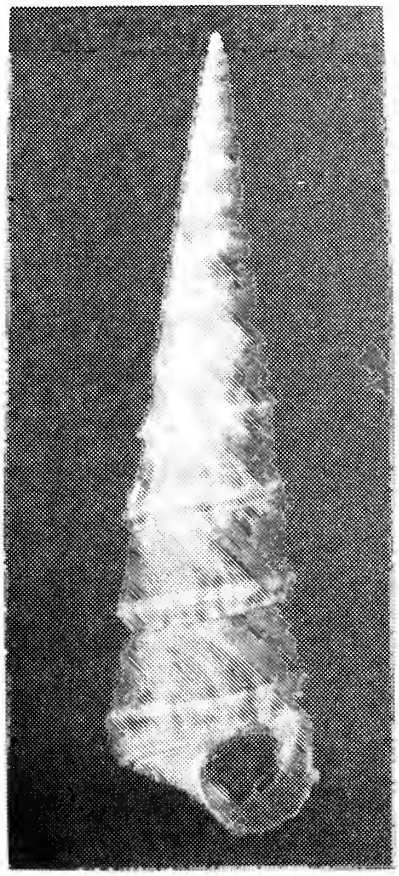

Figure 1. *T. anactor*, 80.5 mm L, San Felipe, N of town, near San Felipe Point, March 15, 1968, tracking in mud in shallow water. Hertz collection. Photo: D. Mulliner

Figure 2. *T. anactor* laying eggs. San Felipe, N of town, near San Felipe Point, in wet mud in mid-tide zone. April 6, 1989. Photo: D. Mulliner

San Felipe is the type locality of *T. anactor* and the species is restricted to the northern Gulf of California (Hertz, 1979). Joyce Gemmell, who had lived and collected in San Felipe for eleven years, said that she had never observed egg laying in the species and I had never seen more than a few specimens intertidally

during any one low tide.

In previous collecting at San Felipe, the *Turritella* species found was usually *T. anactor*. However, DuShane and Brennan (1969) note dredging juvenile specimens of *T. nodulosa* King and Broderip, 1832, off Consag Rock (east by north of San Felipe Bay, offshore approximately 20 miles) and Hertz (1980) lists *Turritella leucostoma* Valenciennes, 1832, in San Felipe [one live subadult taken by David Mulliner in 1966 and dead specimens collected by Joyce Gemmell (Figure 3)]. In 1982, Martin Schuler, of San Diego, collected another live juvenile (42.3 mm L) and two dead specimens, and early this year Larry Buck, of the San Diego Shell Club, told me had had taken live *T. leucostoma* in San Felipe.

Then on the morning of April 7th at a -5.2 foot low tide on the large sand flat just south of the marina, live *Turritella leucostoma* were commonly seen and I observed one specimen with eggs. Unfortunately there was no camera to record this, but to my naked eye, the eggs appeared just like those of *T. anactor*. I saw no *T. anactor* at this beach.

In questionong Joyce Gemmell about the *T. leucostoma*, she mentioned that the shrimpers often dropped mollusks from other areas when they cleaned their nets. It is her view that this species, most likely deposited by shrimpers originally, has taken hold in San Felipe.

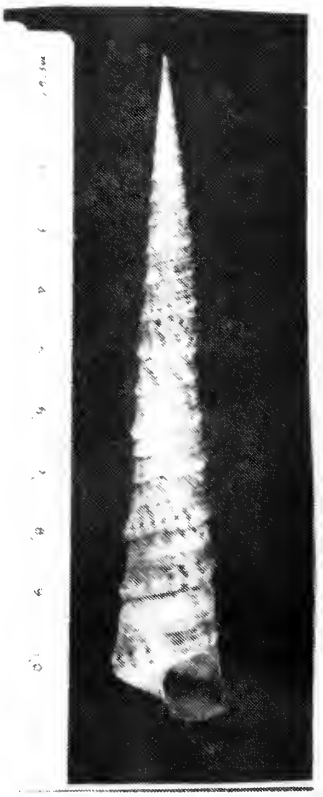

Figure 3. *T. leucostoma*, 118 mm L, San Felipe, collected dead, Gemmell collection

ACKNOWLEDGMENTS

My thanks to David K. Mulliner who tromped through the mud flats to take the photograph of the *T. anactor* laying eggs.

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CHICHIMECA, EARLY SHELL TRADERS AND ARTISANS

HELEN DUSHANE

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Few know that an enterprising group of aborigines in the northern part of the state of Chihuahua, Mexico were very early shell collectors. In 1960, Dr. Charles DiPeso, archaeologist and Director of the Amerind Foundation in Arizona, with mostly native labor, unearthed a ruin in northern Mexico which previously had been visited by Lieut. Frederick Schwatka in the latter part of the nineteenth century. It is from Schwatka (1893) we learn "...the town of Casas Grandes...takes its name, meaning 'big houses' from the ancient ruins situated in its suburbs, and comprising the largest found in this part of Mexico..." He further states of the natives, "They were a wonderful and interesting people, one that would repay careful study, even from the little evidence of their existence that is left."

Casas Grandes was an urban center of an Indian civilization that flourished between 700 A.D. and 1040 A.D.; the city covered 260 acres. Only one eighth of it was excavated by Dr. DiPeso and his staff of workers and yet shells in the millions were recovered. This is not only the largest deposit of artifact mollusks ever recovered, but being the nucleus, it forms the distribution center of all similar artifacts found in other excavations in the southwest.

Therefore, we can say that the early Casas Grandes inhabitants, through their enterprise, established the largest distribution center for shell artifacts that has ever been known. There was a vast frontier market which absorbed their products. They established and protected a trail and communications route running roughly E-W over the Sierra Madre for a distance of some 400 km to the Gulf of California. Two large integral warehouses in the west arm of the high-rise apartment complex offered further proof of the importance of shell trade in the life of the Chichimeca, a name used by DiPeso for these people.

Apparently a system of forced labor was utilized in the working of shells assembled by them. Workers were housed in cell-like rooms with low ceilings, each cell harboring a specialty. In one room, a worker, or workers, fashioned the huge *Strombus galeatus* into trumpets. In another cell, workers fashioned *Conus* of several species into tinklers for the dancers to wear around waist or ankles. The very small shells of *Nassarius iodes* and *Nassarius moestus* were made into strands of beads. The most cunning workers fashioned the shells of *Spondylus princeps*, reminiscent in color of the precious coral (Isis) found only in the Mediterranean Sea, into small nodular beads.

Dr. DiPeso labored for three years at Casas Grandes, through a grant from the Mexican government, with the provision that for a limited time he might bring back all the artifacts found to the Amerind Foundation at Dragoon, Arizona. One could only gasp at the multitude of shells assembled here. Fortunately, I had the opportunity to work with them for a week, making species identification of the entire collection. Of the 3,909,096 shells recovered, 3,821,051 were worked. There were 14 wooden apple boxes of tinklers (*Conus*); 14 similar boxes of *Nassarius*, 3,437,203 of them; 41 *Strombus* trumpets, some inlayed with turquoise and mother-of-pearl, others incised with patterns, usually of frogs. Most of the shells, almost 4 million of them came from the west coast of Mexico.

Chichimeca was a term applied by DiPeso to the aborigines of the area. Gran Chichimeca territory extended from the Pacific Ocean on the west, from the Tropic of Cancer on the south at about 23°27'N and to the north to 38°N latitude. The province runs southward through southern Arizona, down into the states of Sonora and Chihuahua. Caravans traveled from Chichimeca to Mesoamerica trading diverse objects such as furs, bone, medicinal plants, colored paints, salt, coastal shells, minerals and brilliantly colored birds (macaws).

Shell accounted for 98.4% of the raw material used to manufacture ornaments. Shells, principally from the Gulf of California, were trafficked some 400 km or 300 air miles over the Sierra from the Sonoran coast. Volumes of unstrung shell jewelry ornaments were found in the form of beads, bead pendants, strand dividers, tinklers, all intended to be parts of larger ornamental compositions such as necklaces, bracelets, earrings. The artisans utilized some 70 species of marine mollusks and one land snail. Of the 70 species involved, all were intertidal species from the Gulf of California except for four species dealt with separately in this paper. The material is listed in DiPeso (1974, vol. 6).

The degree of expertise varied considerably, from the simple perforated whole shell to that of exquisite tiny red crosses fashioned from the hinge of the bivalve, *Chama echinata*. Sometimes whole shell ornaments were dyed a blue-green, or sometimes used as shell inlay on a larger ornament. In shape, shell pendants were square, triangular, ovoid and circular. The shell craftsmen often removed not only the spire but also the columella of gastropods like *Oliva* and *Conus*. This operation made the mollusks ring when they touched one another in rhythm with a dancer's body and were sometimes dyed blue. They were attached in bunches to dance wands, as rows of fringe on dance skirts, or as noisemaking girdles, or as anklets. About 500 artifacts of shell were designed as arm bangles, wrist bracelets, and finger rings. The arm forms were modified by cutting away the center of a large bivalve, leaving an outer margin ring. Sometimes they incised the umbos in the likeness of animal faces or painted them blue or red, rarely they covered the entire outer surface with layers of a cloisonne-like design. Women sometimes wore as many as 26 arm bracelets on one arm.

Surprisingly, among the many Panamic mollusks a piece of worked *Haliotis fulgens* (green abalone), about 4 inches long and 1½ inches wide (use unknown) and a drilled pendant of *Haliotis cracherodii* (black abalone), one inch long by 1/16th of an inch wide, indicate there must have been some barter between the coastal Indians of the Californias and those of Casas Grandes. This was indeed a surprise as abalone does not inhabit the Gulf of California, but it strengthened the growing feeling that these people were masters at trading mollusks. Proof is indicated here that trade went on between people of the mainland of Mexico and the outer coast of Baja California; proof that the aborigines of Baja California collected mollusks, not only for food, but for barter.

Haliotis fulgens does not occur today in the waters of the Gulf of California. Nor does it occur as a fossil in the early kitchen middens of the Indians or in fossil deposits bordering the Gulf of California. Its range is in the Pacific coastal waters of central Oregon south to the central portion of Baja California. According to Ronald Ives (1961), "Paleontological studies show that the range of the abalone has been quite stable in pleistocene and recent times, despite known changes in sea levels, ocean currents, and ocean temperatures, particularly during the Ice Ages. The first Californians of whom we have records found the abalone in about the same places where we find them today. This is known to be true, for abalone shells and shell fragments are found in the oldest middens of the California coasts."

About 300 years ago (circa 1687) Father Francisco Eusebio Kino, at the request of Philip IV, King of Spain, explored the land and established a chain of missions, which, like beads on a string, reached as far north as Tucson, Arizona. He brought religion, agriculture and domestic meat production to the land, but more importantly, he proved that Baja California is not an island. Known as "The Apostle to the Pimas,"

Kino, early in his work, noted there was extensive trade of the green abalone shell (*Haliotis fulgens*) among the Indians. He saw that the aborigines used them as drinking cups and as other useful objects. In December 1684, while on the west coast of Baja California (west of the Mission of San José de Comondú at approximately 26°03'N; 112°17'W) as a cosmographer for the Antondo Expedition, he observed the Indians utilizing a certain shell of brilliant iridescent shades of blue-green. It was the abalone, *Haliotis fulgens*. When he questioned the Indians regarding their origin they gestured and drew maps in the sand indicating they had procured the shells in trade with other Indians a long walk to the north, then west over high mountains, a journey of 10 to 12 days on foot.

Bit by bit for almost 15 years Father Kino gathered information until he thought he had enough evidence to confirm his conclusion that Alta and Baja California were a continuous land mass, with no water course separating them, and he so reported to Charles II, then King of Spain. Bolton (1948) reports, "This information was received dubiously by the throne." Actually it was many years before maps were changed to agree with Father Kino's conclusions. Today, our maps of the area differ little from the beautiful and precise map Father Kino drew and dated 1701, "Passo por Tierra a la California."

Although Kino's interest in shells cannot be considered a hobby, or a profession, he collected as assiduously as any present-day conchologist. His work reflects the earliest historical record of shell collecting on the west coast. Yet it is a curious fact that only two shells have been named for him, one a land snail, *Holospira kinonis,* Baily and Baily, 1940 and the other the marine species *Cerithiopsis kinoi* Baker, Hanna and Strong, 1938.

Historically, extraneous material is gathered that indicates the aborigines collected shells for food and personal adornment long before the European Caucasians arrived. The beaches of Baja California offered a rich and varied fauna for their use. We know Indians traveled surprisingly long distances to enable them to have a change of diet from forest and desert plants and animals, to shellfish and crustaceans A personal interview with Delfina Cuero, á Dieguẽno Indian (September 5, 1968) revealed that as a young girl she accompanied her family on foot, as her ancestors before her had done, on more or less regular summer trips from the vicinity of Tecate, Baja California Norte, to San Felipe Bay on the shores of the Gulf of California in order to obtain fish and clams to eat. She reported that two edible clams were common on the sand flats of San Felipe Bay and with an educated guess one can surmise from her description that they were *Dosinia ponderosa* and *Chione cortezi*. When more shellfish was taken than they could reasonably eat at the time, the Indians would clean, wash and cut the rest and spread them on the rocks to dry. A story told by this same Indian woman [from Shipek, 1968] is worth repeating here. "There was a story about the *Olivella* shells; they were babies that fell from the stars. They used to say; 'When the dipper in the sky (the Big Dipper) gets too full, it is dumped out. Then these small shells fall all around near the ocean'."

While it is thought that the majority of the shell artifacts came from the Guaymas, Sonora, Mexico area, two species obviously were collected much further south, in the vicinity of Nayarit, Mexico. *Chama echinata* Broderip, 1835, is a common bivalve on the beach rocks off the state of Nayarit. It can be taken much less commonly as far north as Mazatlán. Archaeological specimens of *Persicula bandera* Coan and Roth, 1965 (a pint of them) were sent to Dr. A. Myra Keen for identification. The type locality for these is Banderas Bay, Nayarit and was the only locality where they had been taken alive. Through a strange coincidence, Dr. Keen was on a collecting ship anchored in Banderas Bay. One of the young, Mexican crewmen begged to be allowed to try SCUBA. With a small amount of air he descended to approximately 15 feet. From the substrate he snatched two handsful of the muddy substrate. Returning to the surface, he deposited the mud on the sorting table. From it Dr. Keen extracted small *Persicula* she had never seen before and she took them back to Stanford. These proved to be the same species, undescribed, that had been sent her

from Casas Grandes. Subsequently, Coan and Roth described the species as *Persicula bandera* for the bay in which they had been found. The specific name "bandera" comes from the Spanish word meaning flag. The bay was so named by the Spaniards when they were welcomed by the Indians waving flags and greeting them at the shoreline of the bay.

When excavations of one-eighth of the extensive city of Casas Grandes had been completed by DiPeso and his staff, the ceramics, bone, stone and shell material was brought to the Amerind Foundation located outside Dragoon, Arizona for further study and analysis. After the artifacts had been examined, measured, identified and tagged they were returned to Mexico and may be seen today in the National Museum in Mexico City.

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FOR YOUR INFORMATION

NEW ARTIFICIAL REEF GUIDE ANNOUNCED

A 73-page booklet entitled "A Guide to the Artificial Reefs of Southern California" is available from the Department of Fish and Game. It is designed to "illustrate the location, topography and some of the marine resources living among the artifical habitat.... [It] covers 22 individual reefs, stretching from Central California to San Diego County. Each reef is mapped, graphically displayed and defined by marine coordinates. A photo of the reef or marine life generally found on the rock piles accompanies each layout."

For a copy of the Guide, send $4.00 to Dept. of Fish & Game, Marine Division- K.M., 330 Golden Shore, Suite 50, Long Beach, CA, 90802. (The Guide can be purchased for $3.00 at the Long Beach DFG office and a 10% discount is available on bulk purchases of over 50 copies.

PHOTO EXHIBIT BY BOB YIN ANNOUNCED

An exhibit of the underwater photographs by Bob Yin is scheduled for the month of July at the Athenaeum Library in La Jolla. The exhibit can be viewed during regular library hours Tuesday through Saturday from 10 A.M. to 5 P.M.

Club members are invited to a reception on Monday July 17th from 4-6 P.M.

CLUB NEWS

THE SAN DIEGO SHELL CLUB MEETING -- MAY 18, 1989

The May meeting was called to order by Jules Hertz, substituting for the vacationing President Larry Buck and Vice President Bob Yin. Guests and new members Stan and Mary Regula were presented. Jules then introduced Don Shasky, the evening's speaker whose presentation was "My Last Seven Years--at Cocos Island."

Don's talk traced his seven trips to Cocos Island, Costa Rica with beautiful slides of the area and of many of the shells--endemic, Indo-Pacific and as yet undescribed--that he and his fellow collectors found there. The talk was informative, fun and greatly enjoyed by the overflow audience that came to hear him. Don also brought in a beautiful display of some of the Cocos Island shells he'd found. [An adaptation of Don's talk will appear in the August issue of The Festivus.]

Carole Hertz brought in a birthday cake for Don when she learned that he was spending his birthday giving his talk to the Club. Both talk and cake were enjoyed by all.

Following the refreshment break, with additional sweets provided by Rick Negus and Paula Barton, there was a short business meeting.

Don Pisor discussed the arrangements for the COA meeting from June 19-24 and urged Club members to help and attend. Carole Hertz told of the plans for the Club's welcome party for COA on Monday evening June 19th and suggested Club members attend the function. (For details see page 57 .)

The door prize was won by Stan Regula.

AN APOLOGY

In the acknowledgment of those who donated shells to the Club Auction in April (Festivus, May issue) the names of Linda and Kim Hutsell were not listed. The Hutsells were generous in their donation and we regret the omission.

THE VOLUMES OF OLDROYD'S CLASSIC ON SHELLS OF THE WEST COAST OF NORTH AMERICA FOR SALE

The Marine Shells of the West Coast of North America by Ida Oldroyd, published from 1924 to 1927 will be sold by the Club. Since an original copy from the Barbara Good library was given to the Club by her son, the Club will sell the four-book reissued edition purchased some years ago. The volumes will be on display at the June meeting. Following the meeting, those interested in purchasing the work can send sealed bids to the Club address. A minimum bid of $80.00 will be accepted. The winner will be announced at the July meeting.

BACK ISSUES OF HAWAIIAN SHELL NEWS FOR SALE AT THE JUNE MEETING

At the June 15th meeting, back issues of Hawaiian Shell News from 1969 to 1988 will be available for sale. They will be bundled by year and will be sold at $10.00 per volume. These magazines were made available from the gift of the Barbara Good Library. The Club currently holds a complete set of Hawaiian Shell News.

SAN DIEGO SHELL CLUB PINS AND SHIRTS

Official pins of the San Diego Shell Club with the Club logo, *Pteropurpura festiva*, will be on sale for $3.00 apiece at the June meeting. Treasurer Margaret Mulliner will handle the sale.

At the July meeting, Club tee shirts, tank tops and sweatshirts will be on sale. Order forms will be available at the June meeting. Check with Rick Negus.

MARK YOUR CALENDAR

Shell Bazaar--displaying, buying and trading--August 20th at the home of Larry and Toni Buck. Details later.

THE SAN DIEGO SHELL CLUB HOSTS THE WELCOME PARTY FOR COA

The Club is pleased to host the welcome party on Monday evening June 19th for members of the Conchologists of America. The reception will be held in the ballroom of the Holiday Inn at the Embarcadero from 6-8 P.M.

This is an opportunity for Club members to meet and to renew friendships with COA members attending. San Diego Shell Club members are urged to come and welcome COA to San Diego. There is no charge for this event.

NEW MEMBERS

Lightfoot, Joanne, P.O. Box 2295, Sedona, AZ 86336
Regula, Mary and Stan, 15838 Avenida Villaha #177, San Diego, CA 92128, 673-9910

THE FESTIVUS

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PROGRAM

THE NORTHERN CORAL SEA

Heidrun and Philip Faulconer, award winning underwater photographers, will present a slide program on their latest trip to the northern Coral Sea, where they dived over some of the deepest waters in the world, sometimes over 600 feet off some of the atolls.

Mini-auction of three books will follow the program. (See page 67 for details.)

Shells of the Month: Shells of San Felipe.

Meeting date: July 20th

CONTENTS

CLUB NEWS

FROM THE MINUTES - SAN DIEGO SHELL CLUB MEETING - JUNE 15, 1989

After Larry Buck welcomed guests and announced the sale of new Club pins and supplements of THE FESTIVUS, Bob Yin introduced our speaker of the evening, Dr. Chris Barnhart, whose program, "Desert Snails, Lunar Moths and Other Bits of Natural History" gave us a fascinating look into the world of terrestrial mollusks with their adaptations to the rigors of an arid environment. Chris' outstanding slide presentation and absorbing lecture gave Club members a clearer understanding of the complex evolutionary patterns of mollusks. Chris also discussed the filter feeders such as barnacles and special attention was given to the breathing of snails in their dormant states.

After the coffee break, with refreshments provided by Margaret Mulliner and Wayne Reed, it was announced that the Club has membership forms thanks to the efforts of Kim Hutsell.

Club T-shirts were sold during the break and will be available again at the July meeting. Sweatshirts with the Club logo will also be on sale.

Larry Buck announced that Mike Johnson has been trying to get dive trips organized. A trip to San Miguel Island is on the horizon and other trips may include one to Puertecitos.

The door prize was won by guest Janice DeMarco of Phoenix, Arizona.

Wayne Reed

REPRINT EDITION OF OLDROYD'S CLASSIC FOR SALE BY THE CLUB

As a result of convention chaos (COA and AMU/WSM annual meetings) the closing date for receipt of the bids for Oldroyd's, "The Marine Shells of the West Coast of North America" has been extended to August 1. Sealed bids for the four book set are to be sent to the Club address with a minimum bid of $80.00. The books will again be available for viewing at the July meeting. The winning bid will be announced at the August meeting.

COME TO THE SHELL BAZAAR

On Sunday August 20th beginning at 1:00 P.M. a shell bazaar will be held at the home of Larry and Toni Buck (2534 Via Pisa, Del Mar). There will be shell trading, buying, looking and socializing. Along with your shells, bring your own refreshments and chair.

BAJA TRIP--OCTOBER 21-November 3.

A group of Club members are planning a trip to Bahía Concepción and Puerto Escondido. If you are interested in joining the group, contact Larry Buck (792-5464).

MARK YOUR CALENDAR

The Club's annual September party will be held on September 9th. Further details will be announced at the July meeting.

PHOTO EXHIBIT BY BOB YIN ANNOUNCED

An exhibit of the underwater photographs by Bob Yin is scheduled for the month of July at the Athenaeum Library in La Jolla. The exhibit can be viewed during regular library hours Tuesday through Saturday from 10 A.M. to 5 P.M.

Club members are invited to a reception on Sunday, July 16th from 4-6 P.M.

THE RANGE FOR MACRON AETHIOPS (REEVE, 1847)

HELEN DUSHANE

Research Associate, Los Angeles County Museum of Natural History,
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Macron aethiops (Reeve, 1847) has long been accepted as an endemic species within a small area of the outer coast of Baja California Sur, from Laguna San Jose (Guerrero Negro) south to approximately Bahía Magdalena (Figure 1). Below are collecting records of this species which show it to have a much longer range than previously thought.

Figure 1. *Macron aethiops* (Reeve, 1847). Live on rocks at low tide at old salt mine wharf, Guerrero Negro, Laguna San Jose, Baja California Sur, Mexico , 1/25/75. Length: 73 mm, width: 42.5 mm. Leg. DuShane. Photo: Bert Draper.

Playa San Ramón is a shallow embayment on the Pacific side of Baja California Norte, Mexico (30°45'N; 115°50'W). It is 105 miles south of Ensenada and reached by a short (2.8 miles) stretch of road off paved Mexico Highway #1. We stumbled on to it trying to locate fresh tomatoes grown in the rich, silty soil of the Santo Domingo River channel. Industrious Bajaneros have grown tomatoes there for a number of years. We asked if the road continued to the beach and the reply was, "Sí, sí muy buena playa, muy limpia." Planning originally to stay only long enough to purchase vegetables, we stayed three days during a period of low tides. The beach was smooth and wide with outcroppings of rocks here and there, and offshore a rocky sheet reef showed at extreme low tide.

Our collecting during that time taught us that the San Ramón beach warranted several additional trips which we made throughout the years. Wading out to the sheet reef we found small, dwarf specimens of *Macron aethiops* (Figure 2). It is considered to be an endemic species of the Surian Province, a name proposed by Valentine (1966:203), and encompassing, according to him, an area of the southern shelf segment between about Punta Eugenia and Cabo San Lucas which is coincident with the west coast of Baja California Sur. This is a range extension of this species approximately 350 miles north of its northern boundary.

Two of the nine specimens collected are at the Los Angeles County Museum of Natural History (LACM M-563) and seven specimens are at the American Museum of Natural History (AMNH 232094). Sizes of the seven specimens vary from a length of 34.2 mm, width 20.1 mm to a length of 13.5 mm and width of 8 mm. All specimens collected August 18, 1963 were dead taken and somewhat damaged. Since that long-ago trip we have returned many times to augment our shell collection with numerous fine specimens of other species.

We have checked sources in two major institutions to find that this species is not endemic to the Surian Province. Within the Surian Province the following stations have been reported:

American Museum of Natural History (AMNH 232095) about 10 miles north of Cabo San Lucas, 2 specimens, collected by DuShane, 7/7/56.
(AMNH 157992) 2.5 nautical miles southeast of Isla Conchas, Scammons Lagoon,

collected by W. Emerson 7/26/59, 15 live taken specimens, one juvenile (AMNH 232096) Laguna San José (Guerrero Negro), 6 specimens plus 3 juveniles, live taken, collected by H. DuShane, 1/25/75
(AMNH 186098) Laguna San José, 7 specimens, 6 juveniles, live taken, collected by H. DuShane, 2/10/76.

Los Angeles County Museum of Natural History, 68 lots taken from 26°N to 30°N, including the offshore islands of Cedros, San Geronimo and San Martin, collected by J.H. McLean et al.

Figure 2. *Macron aethiops* from Playa San Ramón, Baja California Norte, Mexico, 105 miles south of Ensenada. Collected by DuShane 8/18/63 on sheet reef. Lengths from 13.5 to 34.2 mm. Widths from 8 to 20.1 mm. Specimens are at the American Museum of Natural History New York City (AMNH 232094). Photo: Bert Draper

As Recent specimens, the Playa San Ramón collecting site is the farthest north along the Baja California coast that this species has been collected. As Pleistocene fossils, Grant and Gale (1931:649, pl. 28, fig. 8) reported this species from Bahía Magdalena and Bahía San Quintin, Baja California. One Pleistocene specimen (smooth form) from the San Pedro Sand, Gibson Road, San Pedro, California (length 49 mm, width 23 mm) was collected by Yvonne Albi in 1983. It is in the Albi collection. Thus, we see that the range for this species is far greater than has previously been reported.

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OXYCHILUS DRAPARNALDI (BECK, 1837), ANOTHER SNAIL IN YOUR GARDEN?

CAROLE M. HERTZ

Associate, Department of Malacology, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, California 90007

In February 1988, Richard Cerutti of the Paleontology Department, San Diego Natural History Museum, brought me seven specimens of a terrestrial snail which neither of us had seen before (Figure 1). The specimens from 6.1 to 12.6 mm maximum diameter, were collected by him in Balboa Park, San Diego, California across from the west entrance of the San Diego Natural History Museum (near the snack bar). They were at the base of a paper plant (*Fatsia japonica*). The specimens are now in the collection of the Marine Invertebrate Department of the San Diego Natural History Museum (SDNHM 93371).

The specimens were sent to Dr. Barry Roth who kindly identified them as *Oxychilus draparnaldi* (Beck, 1837). The species, native to western Europe, was introduced in North America about 1850 or earlier (Bequaert and Miller, 1973) and is found in many parts of the United States. Pilsbry (1946) listed it from such diverse locations as: Boston, Mass.; Washington, D.C.; Charleston, S.C.; Chicago, Ill.; Portland, Ore.; Seattle, Wash.; and San Francisco, Oakland and Balboa Park, San Diego, Calif.--this last collected by the late Dr. Joshua L. Baily. Pilsbry (1946) stated that the species "is said to be carnivorous by preference." That would be good news for the gardeners.

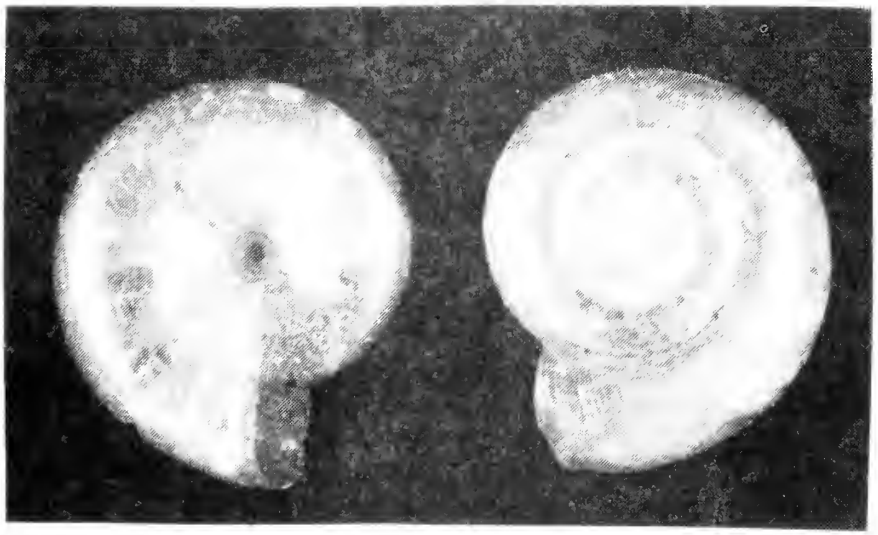

Figure 1. *Oxychilus draparnaldi* (Beck, 1837). SDNHM 93371. two specimens (a) basal view, 11.9 mm max. diam. (b) spire view, 12.3 mm max. diam. Loc.: Balboa Park, San Diego, CA, under *Fatsia japonica*. Leg. R. Cerutti, February 1988.
Photo: David K. Mulliner

ACKNOWLEDGMENTS

I thank Richard Cerutti for bringing the specimens to my attention, Barry Roth for providing their identification and Geoffrey Levin for identifying the plant under which these specimens were found. David K. Mulliner photographed the specimens for which I am grateful.

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C. O. A. CONVENTION — SAN DIEGO

KIM HUTSELL

1154 12th Avenue, San Diego, California 92101

The 17th Annual Convention of the Conchologists of America has come and gone. Hosted by the San Diego Shell Club (and a first for San Diego) the week long convention was hailed as a resounding success by nearly all of the 197 registrants. So pleased were the COA board members with this year's convention that, even before it was over, there was talk of the COA returning to San Diego in the near future!

During the convention, shell enthusiasts from all over the world not only got a chance to attend some outstanding programs on seashells and related subjects, but had ample opportunity to meet and talk with the speakers as well. Speakers included R. Tucker Abbott, Ruth Abramson, Eliezer Rios, Donald Shasky, Anthony D'Attilio, Richard Goldberg, Hugh Bradner, Olive Schoenberg, Don Pisor, Ron McPeak, Bob Schoening, Dave Leighton, Gary Rosenberg, David Mulliner, John Baker, and Barry Wilson, who came all the way from Australia and was our outstanding banquet speaker.

Along with the annual COA Auction and the Dealers' Bourse, convention goers were treated to a Silent Auction and a Dollar Table where many bargains on specimen shells could be found. (Reportedly, this year's auction, to raise operating funds for COA, was one of the most successful ever). Participants also got a behind-the-scenes-look at Sea World and Scripps Aquarium, a San Diego Harbor Dinner Cruise, and the chance to do some shell collecting in Mexico.

From the displays of local and worldwide shells to the underwater photos, from the club pin trading sessions to the press coverage by PM Magazine, there was always something going on, always something interesting to look at, and always someone interesting to talk with. Some people renewed old friendships and almost everyone made new ones.

Much to the relief of the organizing committee, most of the planned activities came off without any major problems and only a few minor ones. Although the committee worked long and hard to assure the smooth operation of the convention, a word of thanks must go out to all those who volunteered to help with registration, club tables, making announcements, running errands, and just plain asking if there was anything they coud do.

To try to summarize the week's events in one or two pages is nearly impossible. All that can really be said is that anyone who missed the 17th annual convention of the Conchologists of America missed the biggest, most important event to shell collectors that San Diego has ever seen!

A REPORT ON THE COMBINED ANNUAL MEETING OF THE AMERICAN MALACOLOGICAL UNION AND WESTERN SOCIETY OF MALACOLOGISTS

JULES HERTZ

3883 Mt. Blackburn Avenue, San Diego, California 92111

The combined annual meeting of the American Malacological Union (AMU) and the Western Society of Malacologists (WSM) was held at the Davidson Conference Center, University of Southern California, Los Angeles, California from 25 to 30 June 1989 with some additional slide presentations at the Los Angeles County Museum of Natural History and some business sessions at the University Hilton, Los Angeles. In addition to four days of papers, there were many planned social events such as the Presidents' Reception, a barbecue, auction and the traditional banquet. Three years of planning by AMU President, James H. McLean and WSM President, Hans Bertsch resulted in a truly outstanding joint meeting. The Presidents' Reception in the main Foyer of the Natural History Museum on Sunday evening was an opportunity to renew old acquaintances and make new ones in a very beautiful setting. Drinks and desserts were provided. This and the specially designed logo by Sue Stephens, prominently displayed on the cover of the program and also on shirts for sale, set the tone for a very friendly and cooperative joint meeting.

The first day featured a symposium, Biology of Pelagic Gastropods, as well as a concurrent afternoon session of contributed papers on Non-marine Mollusks. There were 13 papers presented in the symposium with most of the world's workers on pelagic gastropods present. Authors were from the Federal Republic of Germany, Australia, France, Argentina, Canada, and the U.S. Support for this symposium came from the USC - Sea Grant Program and from the AMU Symposium Endowment Fund. The photography of these minute animals was superb and even seasoned biologists were appreciative.

The second day's program included a symposium, Biology of Scaphopods, as well as contributed paper sessions on Fossil Mollusks and Opisthobranch Gastropods. Rarely does one get to hear a paper on scaphopods, and to have a symposium devoted to them is unusual. I particularly enjoyed the paper presented by Ronald L. Shimek on Resource Utilization in a Multi-Species Scaphopod Assemblage.

On the third day there were two sessions of a symposium devoted to land mollusks in honor of Walter B. Miller. Here too, there were papers presented by an array of international workers. In the afternoon, there was a concurrent session featuring contributed papers on marine gastropods. The final day of presentations featured a concluding session on land mollusks and morning and afternoon sessions on marine bivalves, cephalopods and gastropods.

In general, there were papers covering most of the molluscan phyla presented by workers from many countries. The papers I personally found most interesting were Gary Rosenberg's "Independent Evolution of Terrestriality in Truncatellid Gastropods in Caribbean Islands," Rudiger Bieler's "Sessile Slit-Shells--A first Look at *Siliquaria* Anatomy and Biology (Cerithiodea:Siliquariidae)" and Richard S. Houbrick's "Anatomy, Reproductive Biology and Systematic Position of *Fossarus ambiguus* (Linne) (Fossaridae: Prosobranchia)."

On Thursday evening, June 29th, the traditional banquet was held at the Town and Gown Banquet Hall on the USC campus. After a fine meal we were treated to a presentation by Robert R. Hessler of Scripps Institution of Oceanography. He spoke on the most recent developments in the global exploration of deep-sea hydrothermal vents and showed slides of the hydrothermal vents of the Mariana Back Arc Basin visited in 1987 and compared this area to earlier trips to hydrothermal vents along

the continental rift. This latest visit to a supposedly isolated thermal vent site found some of the same animals as previously seen in other sites, but it also produced animals not previously found. The manner in which these new sites are populated still remains a mystery.

There were many other social events during the week. But by far the highlight of the meeting was the auction. This was the most successful WSM auction ever, featuring the non-stop, humorous dialogue of auctioneer Hank Chaney and excellent donated material of shells, books, and art work. The proceeds were earmarked for student grants and all the attendees felt good about participating, having a good time--and sometimes overbidding.

There were slide presentations of general interest on two of the evenings with refreshments provided by the Conchological Club of Southern California. A dealers' bourse was held on the third and fourth days, providing opportunities to view and purchase shells, books, art work, and shell motif objects.

The last day of the meeting was devoted to field trips, and one could choose to go dredging, diving, visit fossil sites or visit the Malacology and Invertebrate Sections of the Natural History Museum. Carole and I opted for the dredge trip and it was a very well run and successful trip. We joined approximately 25 others on the R/V Vantuna on a beautiful, rather calm day for about three hours of dredging and trawling. Two dredge hauls were taken in a rocky area at 14 fathoms and two otter trawls were taken in muddy areas, one at 50-60 fathoms and the other at 100 fathoms. Each haul was dumped in a large sorting box which was immediately surrounded by many of the participants on their hands and knees trying to separate the mollusks from the fishes, crabs, shrimp, etc. The mollusks were gathered and so was the sifted grunge and put into packets which were later distributed by a draw of numbers. Several excellent specimens were found including a large, live collected *Megasurcula carpenteriana* (Gabb, 1865), a live *Cancellaria crawfordiana* (Dall, 1891), a dead *Solemya panamensis* Dall, 1908, and several *Pecten diegensis* Dall, 1898.

Next year, the AMU will be meeting at Wood's Hole, Massachusetts and the WSM will be meeting at the University of Washington in Seattle. In 1991 there will again be a combined AMU/WSM meeting to be held at the University of California at Berkeley.

NEW MEMBERS

Berschauer, David P., 16 Primrose, Laguna Hills, CA 92656
Bibbey, Joe, 490 Citrus Ave., Imperial Beach, CA 92032 423-5133
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Bridell, Al & Mary, 2265 Gulf Drive #240-E, Sanibel, FL 33957
Cook, Bunnie, 1120 Makaiwa St., Honolulu, HI 96816
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Knobla, Richard H., 1636 Deering Lane, Moorpark, CA 93021
Laforet, Georgette, 176 Periwinkle Park, Sanibel, FL 33957
McKee, Beverly & Dave, 826 Dover Ct., San Diego, CA 92109 276-3828
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Nagoya Shell Club, c/o Hiroshi Munikata (Secretary), Komaki, Aichi-Ken 485 Japan
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Young, Herb & Wilma, 14550 Stone Ave. North, Seattle, WA 98133

BOOK NEWS

SEA OF CORTEZ MARINE INVERTEBRATES, A Guide for the Pacific Coast, Mexico to Ecuador
By: Alex Kerstitch
Published by: Sea Challengers, Monterey, California. 1989
Paperback, size 7 X 9 inches, 112 pages, 283 photographs
Price: $21.50

The quality of the photographs in this 112 page paperback immediately piqued my interest. Although the photographs are approximately 3 X 3 inches, they are clear, sharp and the color is excellent. Most of the living specimens are pictured in their marine habitat. Reportedly thousands of species of invertebrates inhabit the Gulf. A. Myra Keen in her 1971 book "Tropical Seashells of Tropical West America" lists over 3,000 species of mollusks alone. The selection of the 283 species in this book covers nine phyla and effectively shows the diversity of invertebrate forms in the Sea of Cortez, one of the richest areas in the world for marine life.

Alex Kerstitch is a Research Associate in Marine Science at the University of Arizona and coauthor of "Reef Fishes of the Sea of Cortez" as well as an award-winning photographer. Three major contributors authored sections of the book. Hans Bertsch, whose publications include "Hawaiian Nudibranchs," Ronald H. McPeak, co-author of "The Amber Forest" and L. Yvonne Maluf whose many papers on echinoderms include a report on the classification of eastern Pacific echinoderms.

The Forward for the book was written by Richard C. Brusca, Curator of the Department of Marine Invertebrates, San Diego Natural History Museum, whose own book on this area written in 1980, "Common Intertidal Invertebrates of the Gulf of California," is widely used by those interested in the fauna of the Gulf and was the result of intensive study for many years. Dr. Brusca focuses attention on ecology, conservation and the future of this important resource.

A short introduction is followed by an explanation for using the book, mention of each phylum and a short glossary of technical terms. The references include only well-known books and papers.

The text for each species is placed conveniently adjacent to the photograph and the binomial Latin name is given. It is customary to include the name of the author of each species in a scientific work but this is omitted here. The author plus the date the name was first published is a common practice by malacologists. The date is omitted also. The common English name is included and if none was known, a name was created. Not too creative, however, since *Lepas ansifera* was simply called Goose barnacle and *Chthalmalus anisopoma* is distinguished only as Acorn barnacle. *Murex tricoronis* is called Longspine murex. In the genus *Murex* most of the more than 30 species have long spines. Often in the case of a species bearing the name of a person such as *Epitonium billeeanum,* named for Billee Brown, the person's name was disregarded and, thus, instead of Billee's wentletrap this species was called Coral wentletrap. Another example is *Bajaeolis bertschi* named for Hans Bertsch; the common name given is Rainbow sea slug. Further, the author is bound to cause confusion with the use of the common name, Diomedes' triton, for *Tritonia diomedea*, a nudibranch. The English term triton has been a common name for more than 100 years and refers to the family Ranellidae (Cymatiidae) in the Mesogastropoda.

The text contains a brief description and includes size, distribution, habitat and remarks. The latter two categories contain life history information gleaned from many sources as well as from the author's own experience and is a real contribution to our knowledge of this fauna.

Although, for the most part, the book follows phylogenetic sequence, in the molluscan section, *Strombina maculosa*, which is a columbellid was placed before the Naticidae which would make it a mesogastropod instead of following the Muricidae in the Order Neogastropoda. *Harpa crenata* and *Fusinus dupetitthouarsi* should exchange

places for classification purposes.

On page 63, number 143 is listed *"Trapania* n. sp. Yellowtip trapania." The use of "n. sp." is ill-advised since that designation is reserved for a description of a new species..

I thought the cover photograph of *Jenneria pustulata* was outstanding and equally impressive were *Baseodiscus mexicanus, Murex tricoronis, Chromodoris annulata, Cymothoa exigua, Gnathophyllum panamense* and *Petrolisthes marginatus.* Only *Melibe leonina* and *Thor algicola* were too dark and *Pteropurpura centrifuga* positioned in such a way as to be unidentifiable.

This book is a valuable contribution to our knowledge of the marine invertebrates of the Gulf of California and I recommend it to all who dive or snorkel in the Sea of Cortez and those interested in the fauna of these waters.

Barbara W. Myers

NOTICES OF NEW PUBLICATIONS

PELAGIC SNAILS The Biology of Holoplanktonic Gastropod Mollusks

This new book by Carole M. Lalli and Ronald W. Gilmer, recently published by Stanford University Press is on the five groups of pelagic snails "unusual and poorly known gastropods that are highly specialized for life in the open ocean... Based on over fifteen years of study and collection in both Polar regions and most areas of the tropic and temperate zones, this is the first comprehensive biological treatment of all known pelagic snails, about 140 species."

The 284 page book has 16 color photographs, 99 half-tones and 55 line drawings. The price is $45.00.

COMPENDIUM OF LANDSHELLS

A notice of the upcoming publication of R. Tucker Abbott's new book has been received. To be published "in late 1989 or early 1990" the book will treat "over 2,000 species representing 80 families...illustrated in color, each with information on size, habitat, geographical distribution, popular and scientific name, date of publication and best known synonyms." Information on biology of the landshells, three bibliographies (general, geographic and taxonomic) and indices are included.

The price will be $56.00 plus $2.00 postage within the U.S. ($4.00 overseas).

Flyers on these two books will be available at the July meeting.

MINI-AUCTION OF BOOKS AT THE JULY MEETING

There will be a mini-auction of three books following the program at the July meeting. The three books listed below duplicate the Club's library holdings and will be sold. The money earned will be used for future library purchases The three books listed below, as well as books to be auctioned at future meetings, were received as part of the Barbara Good Library.

HAWAIIAN MARINE SHELLS by E. Alison Kay, published 1979, 653 pages, illustrated.

ILLUSTRATED CATALOGUE OF LATIAXIS AND ITS RELATED GROUPS, by Sadao Kosuge and Masajii Suzuki, published 1985 (in English and Japanese) 83 pages, illustrated.

CONE SHELLS, A SYNOPSIS OF THE LIVING CONIDAE by Jerry G. Walls, no publication date, over 1,000 pages, illustrated.

THE FESTIVUS

A publication of the San Diego Shell Club

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PROGRAM

LIVING CALIFORNIAN SHELLS AND THEIR FRIENDS

Richard Herrmann, Club member and superb underwater photographer will share with us his exciting images of living mollusks and other marine animals in their underwater environment.

Shells of the month: Pectens

Meeting date: August 17th

CONTENTS

CLUB NEWS

FROM THE MINUTES - SAN DIEGO SHELL CLUB MEETING - JULY 13, 1989

Following the introduction of new members and guests, President Larry Buck turned the meeting over to Bob Yin who introduced Phil and Heidrun Faulconer. Their spectacular underwater images from their trip to the northern Coral Sea were a treat for the capacity crowd who turned out.

Their beautiful slides of the varied animal life of the area along with the story of their trip was enjoyed by all.

Following this presentation, Dave Mulliner showed slides he took at the recent COA and AMU/WSM meetings and Carole and Jules Hertz continued with their slides of the AMU/WSM dredge trip on the RV Vantuna.

After the break, with homemade tasty cookies provided by Linda and Kim Hutsell, there was a mini book auction, the proceeds to be used for library purchases.

Larry announced that the date of the September party has been changed to Saturday evening, September 16th and the affair will be held at his home. (Map and details will be in the September issue.)

Dates and plans for several trips were announced (see below) and Herb Webster told the group that this was the last opportunity to order Club shirts for awhile. Order blanks were available at the meeting.

It was also announced that Billee Brown has a shell cabinet for sale. Contact her (454-5788) if you are interested.

Linda Hutsell announced that the historian's books are now up-to-date. They will be available for members' enjoyment at each meeting. Margaret Mulliner also has the Club's slides, donated by Dave Mulliner, up-to-date in slide pages for members who wish to check them out.

The shell drawing was won by Paul Barton.

CLUB SHELL BAZAAR

Sunday afternoon August 20th from 1:00 P.M.-? is the date of the Shell Bazaar at Larry Buck's home, 2534 Via Pisa, Del Mar. There will be shell trading, looking and admiring and selling. Bring your own beverages, chair——and shells. For further information call Larry at 792-5404.

THE BAJA TRIP

October 21st to November 3rd are the dates for the Baja trip. A group of Club members will be traveling to Bahía Concepción and Puerto Escondido. If interested call Dave Mulliner (488-2701) or Larry Buck (792-5404).

THE CLUB'S ANNUAL SEPTEMBER PARTY

The September party will be held at the home of Toni and Larry Buck on the evening of Saturday, September 16th. Mark your calendars and plan to attend. It's always great fun. The theme, menu and other details will be discussed at the August meeting. A map will be included in the September issue of The Festivus.

NEW MEMBER

Yvonne Albi, 7001 Vista Del Mar Lane, Playa Del Rey, CA 90293

PSEUDOMELATOMA GRIPPI (DALL, 1919) AT THE CORONADO ISLANDS

KIM HUTSELL

1154 12th Avenue, San Diego, California 92101

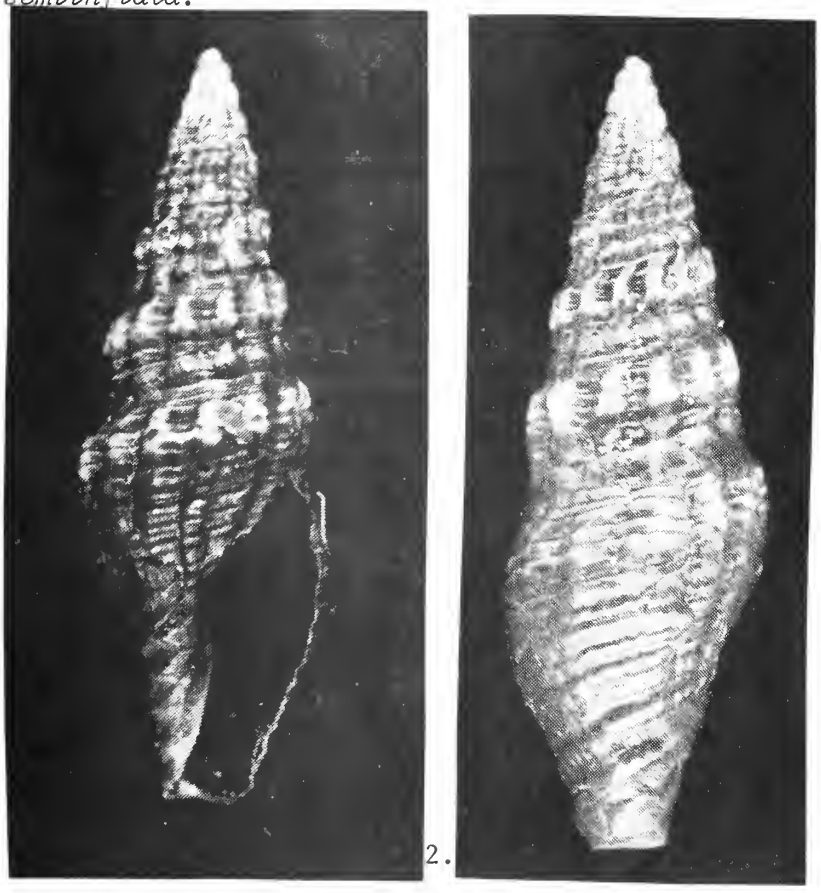
After diving off the Coronado Islands for the last eight years, there are few shells from that area which I don't recognize immediately. However, this past January (1989) I happened across a shell I'd never seen before. Since it was only about a centimeter long, my first thought was that it was a juvenile form of something else...*Mitra idae*, perhaps, or *Crassispira semiinflata*. But it was in the wrong place. Those species like a silty, almost mucky substrate and this specimen was in a hole, under a rock, on a rocky bottom at about forty feet. It was frustrating. I didn't have a name...I didn't even have a genus for this animal. To make things worse, it was my last dive of the day and there wasn't enough air left in my tank to look for more.

Back on board the boat, I turned the shell over and over. The animal was a grayish-brown, not white like *Mitra idae* and the sculpture was completely different from either *Mitra idae* or *Crassispira semiinflata*.

It wasn't until Dave Mulliner gave a workshop on shell photography that I saw that this little shell was something different indeed. Dave set up the shell under his camera lens as part of his demonstration and I got my first really good look. Now I was sure...I had absolutely no idea what it was!

Carole and Jules Hertz seemed confident that it was a species of turrid but couldn't find a matching description and illustration in the literature they had. They brought photographs of the specimen to the recent AMU/WSM meeting in Los Angeles and James H. McLean, of the Los Angeles County Museum of Natural History (LACM) tentatively identified it as *Psuedomelatoma grippi* (Dall, 1919) (Figures 1 and 2). Carole and Jules checked it with specimens in the LACM malacology collection and confirmed Dr. McLean's identification.

The 16.7 mm long specimen varies from that of the original description in that the "pale peripheral band" noted by Dall (1919) appears on the nodes only, becoming paler on the body whorl behind the aperture.



1. 2.

Figures 1 and 2. *Pseudomelatoma grippi* (Dall, 1919). Length: 16.7 mm, Leg. K. Hutsell, January 1989. Collected diving off the Coronado Islands in about 40 ft. on rocky bottom. Photo: David K. Mulliner

The specimen has a complete protoconch of $\pm 1\frac{1}{2}$ whorls (Figure 3) which is smooth, glassy and amber-colored. Dall described the species from San Diego and McLean (1978) published the range as San Pedro, California, to San Martin Island, Baja California Norte, Mexico.

ACKNOWLEDGMENT

I would like to thank Dave Mulliner for photographing the shell.

Figure 3. Protoconch of *P. grippi* specimen shown in Figures 1 and 2.

LITERATURE CITED

DALL, WILLIAM H.
1919. Descriptions of new species of mollusks of the family Turritidae from the west coast of America and adjacent regions. Proc. USNM 56(2288):1-86, pls. 1-24. (Apr. 5).

MCLEAN, JAMES H.
1978. Marine shells of southern California. Nat. Hist. Mus. Los Angeles Co., Sci. ser. 24, revised ed., 104 pp., 54 figs. (Mar. 20).

BOOK NEWS

ANNOUNCEMENTS OF TWO NEW PUBLICATIONS

NORTH AMERICAN FRESHWATER SNAILS

"a reprinting (combining under one cover) of three issues of Walkerana and reproduces (with some additional materials) the out-of-print EPA manual 'Freshwater Snails: Gastropoda of North America'..."

By: J.B. Burch. 1989. 365 pages
Price: $30 plus $4 postage and handling

This book "covers the nearly 500 species of North American (north of Mexico) freshwater snails dealing with their classification, anatomy, identification, distribution, etc.

To order, write to: Malacological Publications, P.O. Box 4115, Ann Arbor, Michigan 48106.

MARINE GASTROPODS FROM CURACAO, ARUBA AND BONAIRE

By: K.M. de Jong and H.E. Coomans in cooperation with F. Verberne. 1989.
vii + 261 pages, 47 plates, maps
Price: $42.50 (cloth with dustjacket)

This book treats 745 species of Recent marine gastropods including shelled opisthobranchs and pulmonates. "Special attention has been given to the small and lesser known gastropods, resulting in 58 species new to science." Over 480 species are illustrated with original drawings, photographs, SEMs and figures from the literature. For those not illustrated, reference is made to illustrations in other books on Caribbean mollusks.

To order, mail to: E.J. Brill, P.O. Box 9000, 2300 PA Leiden, The Netherlands

MY LAST SEVEN YEARS — AT COCOS ISLAND

DONALD R. SHASKY

834 W. Highland Avenue, Redlands, California 92373

Cocos Island, Costa Rica is a tiny, remote spot on this planet that I never expected to visit. One might ask why anyone would want to go to such a place. First, because it is there. Few people had been there; and no scuba diving shell collectors, as far as I knew, had blown a tank of air in its waters. To set the scene: Cocos Island is 278 miles from any land; it is uninhabited except for three marine guards; it is only ten square miles and is of volcanic origin; its rainfall is 22 feet per year; there are 200 waterfalls; there is an abundance of game fish, including a very large shark population, especially crenulated hammerheads; and the water is beautiful and clear.

It was not promising malacologically, judging from the number of species that had been reported from Cocos Island prior to my first visit there in 1983. Previous faunal lists included only 118 species, which included the cephalopods.

Before I left my hope was to find three aces: *Cypraea rashleighana* Melville, 1888; *Morum veleroae* Emerson, 1968; and *Haliotis roberti* McLean, 1970. *C. rashleighana* had been reported based on one beach specimen taken sometime during 1905-06. Cocos Island is the type locality of the other aces.

During the late fall of 1982, the 84-foot motor schooner Victoria af Carlstad, which was built by the crew in their hometown of Carlstad, Sweden, began regular diving trips from its base in Puntarenas, Costa Rica to Cocos Island. It is a trip of from 40 to 50 hours, depending on wind and currents.

Victoria is fully equipped for diving with a great crew captained by Leif Falgren. The dive master, Kevin Burke, was the only non-Swede. He is a wiry Irishman born in England whose home is now in Bermuda. The divers divide up, when our shelling group is there, into the shellers and the sharkers. The sharkers waste their time photographing sharks; while we, the treasure hunters, overturn everything turnable during the day, prowl the sand bottoms at night, set the tangle nets in the afternoon, and pull them in in the morning. If there is time, we dredge.

To and from the island, we troll for game fish from before sunup to sundown. Thirty to fifty pound dorado are not uncommon. We occasionally hang a marlin or a sailfish, and as we get closer to Cocos, there can be huge schools of yellow-fin tuna and small schools of wahoo.

Once at the island, there is an early morning (before breakfast) deep dive, an early afternoon dive, and an after dinner night dive. The tangle nets are dropped in 300 feet of water, usually off Chatham Bay. These are hauled in after one or two nights on the bottom.

There are numerous islets and seamounts around the island, which provide various habitats in which to collect. Some of these dive sites can be very hazardous, especially the one we call Baja Alcycone named for Captain Cousteau's boat, whose crew found it about two and one-half years ago. It is 90 feet down to the top of this mount, with most of the shelling done from 100 to 125 feet. Currents can come up quickly. The skiffs anchor there, so we try not to lose sight of the anchor line.

Lest I forget the shellers. Let me list the principals, all members of the San Diego Shell Club.

Gene Everson	1 trip	Kirstie Kaiser	5 trips
Doug von Kriegelstein	4 trips	Michel Montoya	7 trips
		Don Shasky	9 trips

Kevin, the dive master, holds the record for most dives at Cocos with about 1,700. I am number two with from 325 to 350. Kevin is also a sometime sheller. Because of all the sharks, he refused to dive at night until last year when he saw the good shells we were finding.

Through the years, there have been many exciting finds. During my 1983 trip I found my first ace, *Cypraea rashlieghana*: or was it? When I returned home, I sent the shell, a beautiful, live-taken one from 60 feet, to Dr. Pat Burgess in Honolulu. He wrote that what I had was a new species that would be described in the Venus. It is *C. alisonae* Burgess, 1983 (Figure 1). All of us have found several of these, and we are sure that the 1905-06 beach specimen is not *C. rashleighana* but *C. alisonae*.

Figure 1. *Cypraea alisonae* Burgess, 1983.

In 1984, Gene Everson brought a tangle net. When stretched out, these nets are 6 feet wide and 100 feet long. At that time, we baited the net with chicken bones (a very messy job), weighted it heavily, and dropped it down to 300 feet. It was left overnight. The next morning when we pulled it up, it was mostly empty except for a beautiful, large, undescribed *Murex*. Gene and I each found a hermit crab specimen while diving. In 1986, I found another live one in my net. In 1987, Kirstie and Doug also had nets, and we found several more. All of the specimens collected through 1987 became part of the type lot for what is now known as *Phyllonotus eversoni* D'Attilio, Myers, and Shasky, 1987.

In the nets and also in the dredge, there have been numerous specimens of a new *Strombus (Lentigo)*. This is in manuscript.

In the last few years, we have stopped baiting the nets, with just as good results. Without the bait, there are lots fewer crabs to remove.

From diving, dredging, and tangle-netting,we have about 40 undescribed species. Several of these have Indo-Pacific affinities. The list of Indo-Pacific faunal species that we have found at Cocos Island is long. A partial list includes:

Streptopinna saccata (Linnaeus, 1758)
Spondylus nicobaricus Schreiber, 1793
Cardita aviculina Lamarck, 1819
Tricolia variabilis (Pease, 1861)
Philippia radiata Röding, 1798
Cypraea alisonae Burgess, 1983
C. caputserpentis Linnaeus, 1758
C. moneta Linnaeus, 1758
C. talpa Linnaeus, 1758
Pseudocypraea adamsonii (Sowerby, 1832)
Ranella nicobaricum (Röding, 1798)
Charonia tritonis Linnaeus, 1758
Bursa granularis (Röding, 1798)
Coralliophila violacea (Kiener, 1836)
Morula uva (Röding, 1798)
Clivipollia fragaria (Wood, 1828)
Persicula pulchella Kiener, 1834
Mitra mitra (Linnaeus, 1758)
M. papalis (Linnaeus, 1758)
M. ferruginea Lamarck, 1811
Conus chaldeus (Röding, 1798)
C. ebraeus Linnaeus, 1758
C. tessulatus Born, 1778
Terebra maculata (Linnaeus, 1758)
T. crenulata (Linnaeus, 1758)

Some of the scarce and rare Panamic species we have found follow:

Cheilea corrugata (Broderip, 1834)
Natica idiopoma Pilsbry & Lowe, 1932
Epitonium aciculinum (Hinds, 1844)
E. replicatum (Sowerby, 1844)
Cypraecassis tenuis (Wood, 1828)
Murexiella radwini Emerson & D'Attilio, 1970
Favartia purdyae Vokes & D'Attilio, 1980
Aspella hastula (Reeve, 1844)
A. pollux Radwin & D'Attilio, 1976
Bizetiella micaela Radwin & D'Attilio, 1972
Phyllocoma scalariformis (Broderip, 1833)
Pterotyphis lowei (Pilsbry, 1931)
Coralliobia cumingii (H. & A. Adams, 1864)
Thais planospira (Lamarck, 1822)
Bailya anomala (Hinds, 1844)
Phos articulatus Hinds, 1844
Microcithara uncinata (Sowerby, 1832)
Olivella cocosensis Olsson, 1956
Thala jeancateae Sphon, 1969
Crassispira cerithoidea (Carpenter, 1857)

Each year, when the trip was over, I thought that it would be my last trip to Cocos Island. Once I had unpacked at home, gone through the grunge, and talked with Kirstie, Doug, and Michel, it wasn't long before the next year's trip was on our calendars.

This year we were still collecting *Cypraea alisonae*, but the two other aces were somewhere buried in the deck, and I had resigned myself to failure.

On the first haul of our tangle nets this year, an absolutely marvelous specimen of *Morum veleroae* (Figure 2) was waiting to be untangled. Now the problem was that I wasn't satisfied with a pair of aces. I still wanted "three of a kind."

On the last haul, just before we started back to Puntarenas, my net came up with a tremendous snarl loaded with small pieces of a beautiful red-colored coral. I knew it would take hours to unsnarl the mess and to get the net clean. What seemed like a hopeless task, soon became a tedious joy when I found the first, which happened to be the largest of six, *Haliotis roberti* (Figure 3). Mission accomplished!!!

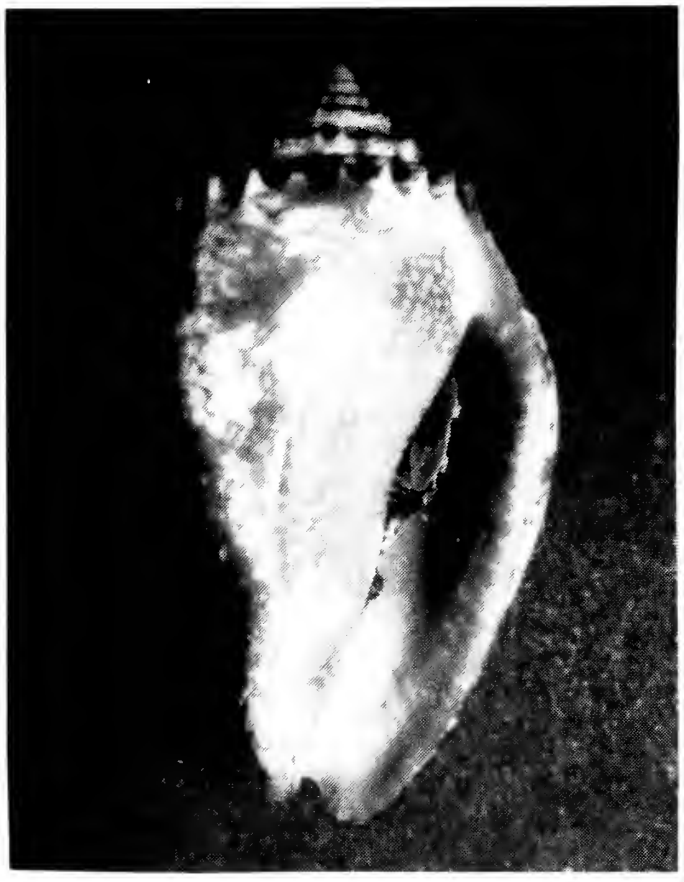


Figure 2. *Morum veleroae* Emerson, 1968.

Figure 3. *Haliotis roberti* McLean, 1970.

I must add that a few days earlier in a similar snarl, I had found a specimen of a species that had never been on my want list. It was attached to the same kind of coral as the *Haliotis roberti*. It was a 50 mm specimen of the curious chiton *Placiphorella blainvillii* (Broderip, 1832).

On Doug's last pull of his net was a single specimen of an undescribed species of *Tritonoharpa*.

Our accomplishments have been rewarding. We have increased the number of known species of mollusks from Cocos Island from 118 to about 500.

Michel, Kirstie and I are in a continuing process of updating our species list. We hope to publish it soon.

ACKNOWLEDGMENT

I thank Dave Mulliner for making black and white prints from my color slides.

Figure 4. *Placiphorella blainvillii* (Broderip, 1832)

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Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

COME TO THE MEXICAN FIESTA

Saturday, September 16th
at the home of Toni and Larry Buck

(See map and details on last page.)

There will be no regular meeting this month.

CONTENTS

CLUB NEWS

FROM THE MINUTES - SAN DIEGO SHELL CLUB MEETING - AUGUST 17, 1989

President Larry Buck welcomed all members and guests to the August 17th meeting and invited new faces to make themselves known.

Our speaker of the evening, Richard Herrmann, Club member, underwater photographer and marine biology diver took us on an incredible underwater marine biology photo excursion from the depths off the Channel Islands to undersea scapes off Santa Rosa and San Miguel Islands. Richard's superb presentation blended his talent as a narrator with his creative ability to document unique marine fauna on film. His camera captured everything from bright orange colonizing anemones off the Coronados to colorful hydrocorals seen during night dives. Of special interest were his photographs of local living shell species and a new unidentified jellyfish. Richard's presentation was a thrilling encounter with living mollusks and other marine life.

Margaret Mulliner announced the sale of back issues of shell publications, magazines etc. to be held during the break and an announcement was made that San Diego Shell Club t-shirts will not be available again until at least April after the present stock is exhausted.

Larry Buck told of a proposal by a private group to cultivate abalone off the Point Loma kelp beds. Members may wish to study the proposal to see how it may affect our marine environment and the collecting of abalone. The proposal is available to members and those concerned should send their comments to the Department of Fish and Game.

The tasty cookies at the break were provided by Marge and Ken Lindall and the shell drawing was won by Wayne Reed.

Wayne Reed

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ADDITIONS TO THE PANAMIC PROVINCE CHITON (POLYPLACOPHORA) LITERATURE - 1971 THROUGH 1988

CAROL SKOGLUND
3846 E. Highland Avenue, Phoenix, Arizona 85018

The nomenclature for Panamic province chiton taxa has undergone many changes since Thorpe's synopsis in SEA SHELLS OF TROPICAL WEST AMERICA (Keen, 1971). This paper consolidates information published since 1971 so that the references can be easily found and brings the list of species present in the province up to date.

Systematic arrangement follows that of Van Belle (1983) as modified slightly by later authors. Species are listed alphabetically within a genus. All species in Keen (1971) are listed and shown with the "Keen number" in brackets after the name. Taxa which differ from those given in Keen (1971) are in bold type. Since the purpose of this paper is to report changes in the literature without being judgmental, synonyms are listed as published by each author, with the exception that those shown in Keen (1971) are not repeated. Where authors disagree, both versions are shown in date order.

The Panamic province, as used by Keen (1971), lies between Magdalena Bay, Baja California Sur, Mexico (about 25°N) and Punta Aguja, Peru (6°S). Seventy-seven species and two subspecies of chitons are currently recognized as occurring in the province. Of the 56 chiton species names originally shown in Keen, only 34 retain species level. Nineteen of the twenty-two new species described since 1971 are considered valid. The remaining species are new to the Panamic province or earlier names not included by Keen.

I would like to thank the many people who have contributed to this paper. Robert Koch of Phoenix, Arizona, and Col. George Hanselman of San Diego, California, read and corrected early drafts. Dr. Douglas J. Eernisse, Museum of Zoology and Department of Biology, University of Michigan, critically read the manuscript and offered many valuable suggestions. A very special thanks is due him. Dr. William G. Lyons of the Florida Department of Natural Resources, Bureau of Marine Research offered clarifications on some taxa. Carole and Jules Hertz of San Diego, California, encouraged the project and edited the final draft. Without them it would not have been completed.

Class POLYPLACOPHORA Gray, 1821
Order NEOLORICATA Bergenhayn, 1955
Suborder LEPIDOPLEURINA Thiele, 1910
Family LEPTOCHITONIDAE Dall, 1889
Subfamily **LEPTOCHITONINAE** Dall, 1889
Genus *Lepidopleurus* (Leach MS) Risso, 1826

Lepidopleurus abbreviatus Dall, 1908. [51]. Becomes synonym of *Leptochiton belknapi*. See number 4.

Lepidopleurus farallonis Dall, 1902. [52]. Becomes synonym of *Leptochiton belknapi*. See number 4.

Lepidopleurus halistreptus Dall, 1902. [53]. Becomes synonym of *Leptochiton belknapi*. See number 4.

Lepidopleurus incongruus Dall, 1908. [54]. Change genus to *Leptochiton*. See number 5.

Lepidopleurus luridus Dall, 1902. [55]. Becomes synonym of *Leptochiton belknapi*. See number 4.

Lepidopleurus opacus Dall, 1908. [56]. Becomes synonym of *Leptochiton belknapi*. See number 4.

1. ***Lepidopleurus scrippsianus*** Ferreira, 1980. Length 20 mm. Off Baja California Sur, Mexico, 2507-2891 m. Known only from type lot (Ferreira, 1980). A second specimen from the Eastern Pacific Rise

[11°52´N, 103°51´W] was found living on a piece of submerged wood recovered from 2750 m depth (Alvin dive 2000) (D. Eernisse, pers. comm.).

Genus *Leptochiton* Gray, 1847
Subgenus *Leptochiton s.s.*

2. ***Leptochiton (L.) albemarlensis*** Smith & Ferreira, 1977. Length 9.8 mm. Isla Isabela, Galápagos Islands, Ecuador, in 20 m. Known only from type lot (Smith & Ferreira, 1977).

3. ***Leptochiton (L.) americanus*** Kaas & Van Belle, 1985. Synonym: *Leptochiton rissoi* of Ferreira, 1981 [not *Lepidopleurus rissoi* Nierstrasz, 1905]. Length to 15 mm. Range: Oregon to southwest of Iquique, Chile, 400 to 1400 m (Kaas & Van Belle, 1985a).

4. ***Leptochiton (L.) belknapi*** Dall, 1878. Synonyms: *Leptochiton benthus* Haddon, 1886; *Lepidopleurus mesogonus* Dall, 1902; *Lepidopleurus halistreptus* Dall, 1902; *Lepidopleurus abbreviatus* (Dall) Thorpe in Keen, 1971; *Lepidopleurus halistreptus abbreviatus* Dall, 1908; *Lepidopleurus luridus* Dall, 1902; *Lepidopleurus farallonis* Dall, 1902; *Lepidopleurus giganteus* Nierstrasz, 1905; *Lepidopleurus simplex* Nierstrasz, 1905; *Lepidopleurus opacus* Dall, 1908; *Lepidopleurus japonicus* Thiele, 1909; *Lepidopleurus japonicus aequivalvus* Bergenhayn, 1933; *Lepidopleurus aequispinnus* Bergenhayn, 1933. Length 40 mm. Range: Panama Bay; Galápagos Islands; North Atlantic; Sea of Japan; Bering Sea. Depth: to 550 m (Ferreira, 1979b). Extend range to the Indian Ocean. Add synonyms: *Lepidopleurus similis* E.A. Smith, 1894; *Parachiton opiparus* Iredale & Hull, 1925 (Kaas & Van Belle, 1985a). Holotype of *L. opacus* figured by Smith & Ferreira (1977). Range: the Pacific and Indian Oceans, 160 to 4140 m. *L. alveolus* is restricted to the Atlantic Ocean (Kaas & Van Belle, 1987).

5. ***Leptochiton (L.) incongruus*** (Dall, 1908). Length 12 mm. Range: Gulf of Tehuantepec, Mexico; Gulf of Panama. Depth: 589 m (Ferreira, 1979b).

6. ***Leptochiton (L.) nexus*** Carpenter, 1864. Extend range to Bahía de los Angeles in the Gulf of California (Hanselman, 1977). Synonyms: *Lepidopleurus (Xiphiozona) heathi* Berry, 1919; *Lepidopleurus (Leptochiton) ambustus* Dall, 1919; *Lepidopleurus (Leptochiton) lycurgus* Dall, 1919. Length to 25 mm. Range: Alaska to Punta Abreojos, Baja California; Bahía de los Angeles in the Gulf of California, Mexico. Depth: 12 to 90 m (Ferreira, 1979b). Depth: to 144 m (Kaas & Van Belle, 1985a).

7. *Leptochiton (L.) rugatus* (Pilsbry, 1892). [1] Add as synonyms: *L. internexus* Carpenter in Pilsbry, 1892; *L. cancellatus* (Sowerby) in Dall, 1879; *Lepidopleurus assimilis* Thiele, 1909; *Lepidopleurus alascensis* Thiele, 1909. Range: Alaska to Bahía Magdalena, Baja California Sur, Mexico (Ferreira, 1979b). Range: throughout most of the Gulf of California, Mexico; Sea of Japan; Okhotsk Sea; Bering Sea. Intertidal to 458 m. (Kaas & Van Belle, 1985a).

Genus ***Oldroydia*** Dall, 1894

8. ***Oldroydia percrassa*** (Dall, 1894). Synonyms: *Hanleya hanleyi* (Bean) in Oldroyd, 1927 [not *Chiton hanleyi* Bean, in Thorpe, 1844]; *Hanleya spicata* Berry, 1919. Length to 28 mm. Range: Salsipuedes Channel, Gulf of California, Mexico; Monterey Bay, California to Isla San Benito, Baja California, Mexico; the Sea of Japan. Intertidal to 457 m (Ferreira, 1979b). Delete *Hanleya hanleyi* (Bean) as synonym and delete the Sea of Japan from the range. Intertidal to 730 m (Kaas & Van Belle, 1985a).

Suborder CHITONINA Thiele, 1910
Family ISCHNOCHITONIDAE Dall, 1899
Subfamily ISCHNOCHITONINAE Dall, 1889
Genus ***Ischnochiton*** Gray, 1847

9. ***Ischnochiton carolianus*** Ferreira, 1984. Length 8.5 mm. Near Bahía San Carlos, Sonora, and at Bahía de los Angeles, Baja California, Mexico. Depth: 61 to 182 m (Ferreira, 1984).

10. ***Ischnochiton dispar*** (Sowerby, 1832). [15]. Change genus (Smith, 1977). Add synonyms: *Gymnoplax anaglyptus* De Rochebrune, 1884; *Lepidopleurus fuscopunctatus* (Carpenter MS) Leloup, 1961 (Kaas & Van Belle, 1980).

11. ***Ischnochiton eucosmius*** Dall, 1919. [16]. Change genus. Add synonym *Radsiella guatemalensis* (Thiele, 1910) (Smith, 1977) (Smith & Ferreira, 1977).

12. ***Ischnochiton macleani*** Ferreira, 1978. Length 5.0 mm. Tagus Cove, Albemarle Island, Galápagos Island. Depth: 55 m. Known only from the Galápagos Islands (Ferreira, 1978).

13. ***Ischnochiton muscarius*** (Reeve, 1847). [17]. Change genus. Range: Guaymas, Sonora, to Salina Cruz, Oaxaca, Mexico (Ferreira, 1983b).

Ischnochiton petaloides (Gould, 1846). [19]. Change genus. Extend range south to the Galápagos Islands, Peru, and the Hawaiian Islands (Smith & Ferreira, 1977). Delete. Becomes a synonym of *Ischnochiton rugulatus* (Sowerby, 1832) [20] (Ferreira, 1983b).

14. ***Ischnochiton rugulatus*** (Sowerby, 1832). [20]. Genus changed from *Radsiella*. Synonyms: *Chiton catenulatus* Sowerby in Broderip & Sowerby, 1832; *Chiton petaloides* Gould, 1846 [19]; *Chiton mariposa* Dall, 1919; *Stenoplax histrio* Berry, 1945. Delete as synonyms: *Chiton roseus* Sowerby, 1832 [not Blainville, 1825]; *C. pallidulus* Reeve, 1847; *Ischnochiton boogii* Haddon, 1886; *I. aethonus* Dall, 1919; *Stenoplax isoglypta* Berry, 1956. Lectotype: figs. 11-12. Range: from Malarrimo Point, Baja California Sur, throughout the Gulf of California and south to Peru; Galápagos Islands; Soccoro Island (Ferreira, 1983b). Ferreira (1985b) uses "*Radsiella rugulata* (Sowerby, 1832)" Thorpe in Keen, 1971 [not *Chiton rugulatus* Sowerby, 1832] as a synonym of *Stenoplax boogii* (Haddon, 1886). Kaas & Van Belle (1987) do not.

15. ***Ischnochiton skoglundi*** Ferreira, 1986. Length 4.8 mm. Playa Novillero, Nayarit, Mexico. Depth: 5 to 15 m. Known only from the type locality (Ferreira, 1986).

Ischnochiton species Thorpe, MS. [18]. Change genus (Smith, 1977).

16. ***Ischnochiton tenuisculptus*** (Carpenter, 1864). [21]. Change genus (Van Belle, 1983).

17. ***Ischnochiton tridentatus*** Pilsbry, 1893. [22]. Change genus (Smith, 1977).

18. ***Ischnochiton victoria*** Ferreira, 1987. Length 3.5 mm. Known only from Cocos Island, Costa Rica (Ferreira, 1987).

Genus *Stenoplax* (Carpenter MS) Dall, 1879
Subgenus *Stenoplax s.s.*

19. *Stenoplax (S.) boogii* (Haddon, 1886). Synonyms: *Chiton roseus* Sowerby in Broderip and Sowerby, 1832 [not Blainville, 1825]; *Ischnochiton bermudensis* Dall and Bartsch, 1911; *Ischnochiton (Stenoplax) aethonus* Dall, 1919; *Stenoplax isoglypta* Berry, 1956; "*Radsiella rugulata* (Sowerby, 1832)" Thorpe in Keen, 1971 [not *Chiton rugulatus* Sowerby, 1832]. Length 10 mm. Bahía de los Angeles, Gulf of California, Mexico, to Peru. Verified records from Cabo San Lucas, Baja California Sur, Mexico, to Bahía Herradura, Panama. Depth: 0 to 40 m (Ferreira, 1985b). *S. isoglypta* holotype figured (Hertz 1984). Add Cocos Island, Costa Rica to range (Ferreira, 1987). Add subgenus. Add synonym: *Ischnochiton dubium* Nowell-Usticke, 1969. Delete as synonym: "*Radsiella rugulata* (Sowerby, 1832) Thorpe in Keen, 1971 [not *rugulatus* Sowerby, 1832]. Add Caribbean to range (Kaas & Van Belle, 1987).

20. *Stenoplax (S.) circumsenta* Berry, 1956. Length to 26 mm. Extend range into the Gulf of California from Isla Partida to Isla Espíritu Santo and Pichilinque, Baja California Sur, 1 to 15 m (Ferreira, 1972). Extend range to Mediol Island, 6 miles southwest of Guaymas, Sonora, Mexico (Hanselman, 1973). Ferreira (1983b) used *S. circumsenta* as a synonym of *Stenoplax (S.) corrugata*. Holotype figured (Hertz, 1984). Valid species. Length 20 mm. Range: Scammon's Lagoon to Bahía Magdalena on the Pacific side of Baja California and on the Gulf side from Isla Monserrate to La Paz; near Guaymas, Sonora on the Mexican mainland (Kaas & Van Belle, 1987).

21. *Stenoplax (S.) corrugata* (Carpenter in Pilsbry, 1892). Synonyms: *Ischnochiton biarcuatus* Dall, 1903; *Stenoplax circumsenta* Berry, 1956. Length 24 mm. Santa Cruz Island, California to Bahía Magdalena, Baja California Sur, Mexico. From Isla Danzante to Pichilinque on the western side of the Gulf of California and off Guaymas, Sonora, Mexico. Depth: 3 to 103 m (Ferreira, 1983b). Add subgenus. Delete *S. circumsenta* Berry, 1956 as a synonym. Limit range from Santa Cruz Island, California to Islas Guadalupe and San Martín, Baja California and Clarion Island, Mexico (Kaas & Van Belle, 1987).

22. *Stenoplax (S.) limaciformis* (Sowerby, 1832). [24]. Add synonyms: *Chiton purpurascens* Adams, 1845; *Onitochiton* [sic] *pruinosum* Rochebrune, 1884 [not *Chiton prunosus* Gould, 1856]; "*Ischnochiton multicostatus* C.B. Adams," Dall, 1883 [not C.B. Adams, 1845]; *Ischnochiton (Stenoplax) floridanus* Pilsbry, 1892; *Chiton angustus* Clessin, 1904. Range: Isla Tiburón, Gulf of California, to Punta Ancón, Ecuador, and the Caribbean (Ferreira, 1985b). Delete as synonyms all above except *Chiton angustus* Clessin, 1904, and limit the range to the eastern Pacific (Bullock, 1985). Range: Gulf of California to Inner Lobos Island, Peru (Kaas & Van Belle, 1987).

Subgenus *Stenoradsia* Carpenter MS, Dall, 1879

Stenoplax (S.) conspicua (Carpenter MS, Pilsbry, 1892). Synonyms: *Maugerella conspicua* Carpenter MS; *Ischnochiton sarcosus* Dall, 1902; var. *solida* (Carpenter in Pilsbry, 1892) (Kaas & Van Belle, 1980). Add subgenus. Delete. Range is north of the Panamic province (Kaas & Van Belle, 1987).

23. *Stenoplax (S.) magdalenensis* (Hinds, 1845). [25]. Add subgenus. Extend range on the western coast of Baja California from Bahía San Quintín to Cabo San Lucas and in the Gulf of California from Puerto Peñasco, Sonora to Bahía Concepción, Baja California Sur, Mexico, intertidal (Kaas & Van Belle, 1987).

24. *Stenoplax (S.) sonorana* (Berry, 1956). [23]. Holotype figured (Hertz, 1984). Add subgenus. *S. sonorana* becomes a full species. Length to 65 mm. Range: northern half of the Gulf of California (Kaas & Van Belle, 1987).

Genus *Lepidozona* Pilsbry, 1892
Subgenus *Lepidozona s.s.*

25. ***Lepidozona (L.) allynsmithi*** Ferreira, 1974. [36]. Length 20 mm. Range: Los Candeleros and Isla Las Animas, Gulf of California, Mexico, to Bahía de Huevos, Costa Rica. Depth: 2 to 20 m (Ferreira, 1974). Add subgenus (Kaas & Van Belle, 1987).

26. ***Lepidozona (L.) clarionensis*** Ferreira, 1983. Length 15 mm. Endemic to Islas Revillagigedos, Mexico. Depth: 8 to 25 m (Ferreira, 1983b). Add subgenus (Kaas & Van Belle, 1987).

27. *Lepidozona (L.) clathrata* (Reeve, 1847). [31]. Add synonym: *Ischnochiton subclathratus* Pilsbry, 1892. Extend range south to Manzanillo, Colima, Mexico, and depth to 10 m (Ferreira, 1974). Add subgenus (Kaas & Van Belle, 1987).

28. *Lepidozona (L.) crockeri* (Willett in Hertlein & Strong, 1951). [32]. Extend range north to near Isla Monserrate, Gulf of California, Mexico (Ferreira, 1974). Add subgenus (Kaas & Van Belle, 1987).

Lepidozona elenensis (Sowerby, 1832). [33]. Change genus to *Callistochiton*. See number 38.

Lepidozona flavida (Thiele, 1910). [34]. Becomes a synonym of *Callistochiton elenensis*. See number 38.

29. ***Lepidozona (L.) formosa*** Ferreira, 1974. [35]. Length 25 mm. Isla San Francisco to Isla Cerralvo, Gulf of California, Mexico. Depth: 15 to 20 m (Ferreira, 1974). Add subgenus. Extend range northward to Isla Blanca (2 miles south of Puerto Escondido), Baja California Sur, Mexico (Kaas & Van Belle, 1987).

30. ***Lepidozona (L.) laurae*** Ferreira, 1985. Length 14.5 mm. Known only from the general locality of Guaymas, Sonora, Mexico, and at depths of 60 to 100 m (Ferreira, 1985a). Add subgenus (Kaas & Van Belle, 1987).

Lepidozona macleaniana Ferreira, 1985. Length 20 mm. Off Isla San Pedro Nolasco, Gulf of California, Mexico, depth 100-104 m. Known only from type locality (Ferreira, 1985a). Delete. Becomes a synonym of *L. rothi* Ferreira, 1983 (Kaas & Van Belle, 1987). See number 33.

31. ***Lepidozona (L.) pectinulata*** (Carpenter in Pilsbry, 1893). Synonyms: *Ischnochiton (Lepidopleurus) pectinatus* Carpenter, 1864 (nom. nud.); *Ischnochiton bryanti* Dall, 1919; *Ischnochiton brunneus* Dall, 1919; *Ischnochiton (Lepidozona) californiensis* Berry, 1931; *Ischnochiton clathratus* (Reeve, 1847). Length to 40 mm. Range: San Luis Obispo County, California to Bahía Magdalena, Baja California Sur, Mexico. Intertidal to about 20 m (Ferreira, 1978b).

32. ***Lepidozona (L.) retiporosa*** (Carpenter, 1864). Length 12 mm. Alaska to off the southern end of Baja California, Mexico, 137 to 453 m (Kues, 1974). Change genus from *Ischnochiton* (Smith, 1977). Synonyms: *Leptochiton punctatus* Whiteaves, 1887; *Ischnochiton venezius* Dall, 1919; *Ischnochiton (Ischnochiton) aureotinctus* Carpenter MS, in Pilsbry, 1892 (Ferreira 1978b). Add subgenus. Add synonym: ?*Ischnochiton subexpressus* Carpenter MS, Palmer, 1945 (nom. nud.) (Kaas & Van Belle, 1987).

33. ***Lepidozona (L.) rothi*** Ferreira, 1983. Up to 15 mm long. Known only from Clarion Island, Mexico, and Cocos Island, Costa Rica. Depth: 55 to 110 m (Ferreira, 1983b). Add synonym: *Lepidozona macleaniana* Ferreira, 1985. Add Isla San Pedro Nolasco, Gulf of California, to range (Kaas & Van Belle, 1987).

34. *Lepidozona (L.) serrata* (Carpenter, 1864). [37]. Extend range north to Monterey Bay, California, and south to Mazatlán, Sinaloa, Mexico, and depth to 10 m (Ferreira, 1974). Add subgenus (Kaas & Van Belle, 1987).

35. ***Lepidozona (L.) stohleri*** Ferreira, 1985. Length 26 mm. Known only from Isla Angel de la Guarda and Isla Danzante, Gulf of California, and Bahía de los Angeles, Baja California, Mexico. Depth: 12 to 60 m (Ferreira, 1985a). Add subgenus (Kaas & Van Belle, 1987).

36. *Lepidozona (L.) subtilis* Berry, 1956. [38]. Distribution confined to northern half of the Gulf of California, Mexico (Ferreira, 1984). Holotypes of *L. subtilis* and synonym *L. pella* Berry, 1963, figured (Hertz, 1984). Add subgenus (Kaas & Van Belle, 1987).

Subfamily CALLISTOPLACINAE Pilsbry, 1893
Genus *Callistochiton* (Carpenter MS) Dall, 1879

Callistochiton carmenae A. G. Smith & Ferreira, 1977. Synonym: *Callistochiton shuttleworthianus* Pilsbry, 1893. Length 8.7 mm. Known only from the Galápagos Islands (A. G. Smith & Ferreira, 1977). Delete. Becomes a synonym of *Callistochiton pulchellus* (Gray, 1828) (Ferreira, 1979). See number 41.

37. *Callistochiton colimensis* (A.G. Smith, 1961). [26]. Add synonym: *Ischnochiton lowei* Pilsbry in Pilsbry & Lowe, 1932. Extend range south to Panama and depth to 340 m (Ferreira, 1979a).

Callistochiton duncanus Dall, 1919. [27]. Change genus to *Chaetopleura*. See number 44.

38. ***Callistochiton elenensis*** (Sowerby, 1832). [33] Change genus. Add synonyms: *Callistochiton flavidus* Thiele, 1910; *Lepidozona flavida* (Thiele) Thorpe in Keen, 1971. Remove as synonym *Lepidopleurus clathratus* Carpenter, 1857 [not Reeve, 1847]. Extend range south to Punta Ancón, Ecuador, and depth to 90 m (Ferreira, 1979a).

39. *Callistochiton gabbi* Pilsbry, 1893. [28]. Add synonyms: *Callistochiton infortunatus* Pilsbry, 1893; *Callistochiton decoratus infortunatus* Dall, 1921; *Callistochiton leidensis* Nierstrasz, 1905. Range: throughout the Gulf of California, Mexico, to Ecuador. Depth: to 40 fathoms (Ferreira, 1979a).

Callistochiton infortunatus Pilsbry, 1893. [29]. Becomes a synonym of *C. gabbi*. See number 39.

40. ***Callistochiton periconis*** Dall, 1908. [30]. Add synonyms: *Callistochiton fisheri* Dall, 1919; "*Chiton pulchellus* Gray" of authors not Gray, 1828. Remove *Chiton bicostatus* Orbigny, 1841, as synonym. Length 15 mm. Near San Juan del Sur, Nicaragua, to Punta Cruces, Colombia. Intertidal to 30 m (Ferreira, 1979a).

41. ***Callistochiton pulchellus*** (Gray, 1828). Synonyms: *Chiton bicostatus* Orbigny, 1841; *Callistochiton carmenae* A.G. Smith & Ferreira, 1977; *Callistochiton shuttleworthianus* Pilsbry in Bergenhayn, 1936. Length 8.7 mm. Galápagos Islands, Ecuador, and Chile. Known only intertidally (Ferreira, 1979a).

Genus *Callistoplax* (Carpenter MS) Dall, 1882

42. *Callistoplax retusa* (Sowerby, 1832). [43]. Van Belle (1983) makes *Callistoplax* a subgenus of *Callistochiton*. D. Eernisse (pers. comm., 1989) says that current thinking returns *Callistoplax* to genus status.

Genus *Ceratozona* Dall, 1882

43. *Ceratozona squalida* (Adams, 1845). [46]. Synonyms: *Chiton rugosus* Sowerby, 1840 [not Gray, 1826]; *Chiton guildingii* Reeve, 1847; "*Ch. bicolor*, Adams" Gray, 1847; *Ceratozona angusta* Thiele, 1909. Nicaragua to Costa Rica; Florida to Barbados, West Indies. Depth: 0 to 1 m (Ferreira, 1985b).

Subfamily CHAETOPLEURINAE Plate, 1899
Genus *Chaetopleura* Shuttleworth, 1853.

44. *?Chaetopleura duncanus* (Dall, 1919). [27]. Change genus to *Calloplax*. Length 13 mm (Smith & Ferreira, 1977). Genus *Calloplax* moved to family Callistoplacidae (Ferreira, 1978c). Return *Calloplax* to family Chaetopleuridae (Ferreira, 1982a). *Calloplax* treated as a subgenus of *Callistochiton* in the subfamily Callistoplacinae (Van Belle, 1983). *Calloplax* becomes a synonym of *Chaetopleura* (Lyons, 1985). *Chaetopleura duncanus* not included in the review of the genus *Chaetopleura* by Kaas and Van Belle (1987); hence the question on the correct generic placement.

Subgenus *Chaetopleura s.s.*

45. ***Chaetopleura (C.) benaventei*** Plate, 1899. Synonym: *Variolepis iquiquensis* Plate, 1899. Length to 24 mm. Range: northern Peru to central Chile, 8 to 20 m (Kaas & Van Belle, 1987).

46. ***Chaetopleura (C.) hanselmani*** (Ferreira, 1982). Length 9 mm. Range: Mazatlán, Sinaloa, Mexico, to Peru and the Galápagos Islands. Intertidal to 17 m. Described as genus *Calloplax* and returned to the Chaetopleuridae (Ferreira, 1982a). *Calloplax* becomes a subgenus of *Callistochiton* (Van Belle, 1983). *Calloplax* becomes a synonym of genus *Chaetopleura* (Lyons, 1985). Add subgenus. Synonym: *Chaetopleura cf. C. mixta* (Dall, 1919) Smith & Ferreira, 1977 (Kaas & Van Belle, 1987).

47. *Chaetopleura (C.) lurida* (Sowerby, 1832). [41]. Synonyms: "*Chaetopleura lurida* (Sowerby)" *ex auttore* treating Panamic species including Thorpe in Keen, 1971 [not *Chiton luridus* Sowerby (1st) in Broderip & Sowerby, 1832]; "*Chiton columbiensis* Sowerby, 1832" Thorpe in Keen, 1971 [not *Chiton columbiensis* Sowerby, 1832]; "*Chiton catenulatus* Sowerby, 1832" Thorpe in Keen, 1971 [not *Chiton catenulatus* Sowerby, 1832]; "*Chiton jaspideus* Gould, 1846," Thorpe in Keen, 1971 [not *Chiton jaspideus* Gould, 1846]; *Lepidopleurus bullatus* Carpenter, 1857; *Lepidopleurus bullatus calciferus* Carpenter, 1857; *Ischnochiton parallelus* Carpenter, 1864; *Ischnochiton prasinatus* Carpenter, 1964; *Choetopleura* [sic] *dacrydigera* Rochebrune, 1882. Occurs from the central part of the Gulf of California, Mexico, to Isla Gorgona, Colombia (Ferreira, 1983a). Remove *C. lurida* as a synonym. Add synonyms: *C. scabriculus* Sowerby in Broderip & Sowerby, 1832; *Chiton sowerbyanus* Clessin, 1904; *Chaetopleura scabriscula*; Ferreira, 1983; *?Chiton dieffenbachii* Reeve, 1847. Intertidal to 30 m (Kaas & Van Belle, 1987).

48. ***Chaetopleura (C.) peruviana*** (Lamarck, 1819). Synonyms: *Chiton hirsutus* Deshayes MS?, Gray, 1828; *Chaetopleura peruviana var. australis* Plate, 1899. Length to 50 mm. Range: Cape San Lorenzo, Ecuador, south to Chonos Archipelago, Chile, intertidal to 40 m (Kaas & Van Belle, 1987).

49. ***Chaetopleura (C.) roddai*** Ferreira, 1983. [39]. Length to 33 mm. Range: Fort Kobbe, Panama, to Bocapan, Tumbes Province, Peru, intertidal to 90 m (Ferreira, 1983a). Add subgenus. Correct spelling from *roddae* (Kaas & Van Belle, 1987).

50. ***Chaetopleura (C.) shyana*** Ferreira, 1983. Length 27 mm. Isla Pata, Bahía de los Angeles, Baja California; Isla Turner, and Isla Partida, Mexico. Intertidal to shallow subtidal zone (Ferreira, 1983a). Add subgenus (Kaas & Van Belle, 1987).

51. *Chaetopleura (C.) **unilineata*** Leloup, 1954. [42]. Synonym: "*Chaetopleura mixta* (Dall, 1919)" *ex auttore* treating Panamic species including Thorpe in Keen, 1971 [not *Tonicia mixta* Dall, 1919]. Length to 32 mm. From the head of the Gulf of California to northern Peru, intertidal to 90 m (Ferreira, 1983a). Add subgenus (Kaas & Van Belle, 1987).

Subgenus ***Pallochiton*** Dall, 1879

52. ***Chaetopleura (P.) lanuginosa*** (Carpenter MS, Dall, 1879). Synonyms: *Arthuria filosa* Carpenter in Dall, 1882 (nom. nud.); *Nuttallina magdalena* Dall, 1919; *Tonicia mixta* Dall, 1919 [pars] [not *Chaetopleura mixta* (Dall) of authors treating Panamic species; *Chaetopleura raripustulosa* Pilsbry in Pilsbry & Lowe, 1932; *Chaetopleura (Pallochiton) euryplax* Berry, 1945. Length to 60 mm. Outer Baja California from Ensenada to Bahía Magdalena; San Felipe to Bahía Concepción on the western side of the Gulf of California, and Bahía de Adair to Topolobampo, Sinaloa, on the mainland side. Mostly intertidal but extends to 91 m (Ferreira, 1983a). Length to 40 mm. Remove as synonyms: *Tonicia mixta* Dall, 1919; *Chaetopleura raripustulosa* Pilsbry in Pilsbry & Lowe, 1932; *Chaetopleura euryplax* Berry, 1945. Limit range to the west coast of Baja California from Bahía Todos Santos, Baja California to Bahía Magdalena, Baja California Sur, Mexico (Kaas & Van Belle, 1987).

53. ***Chaetopleura (P.) lanuginosa mixta*** (Dall, 1919). [40]. Synonyms: *Tonicia mixta* Dall, 1919; *Chaetopleura raripustulosa* Pilsbry in Pilsbry & Lowe, 1932 (nom. nud.); *Chaetopleura (Pallochiton) euryplax* Berry, 1945. Range: the upper Gulf of California, south to Bahía Concepción on the Baja California side, and south to Bahía Topolobampo, Sinaloa on the Mexican mainland (Kaas & Van Belle, 1987).

Subfamily LEPIDOCHITONINAE Iredale, 1914
Genus *Lepidochitona* Gray, 1821

54. ***Lepidochitona beanii*** (Carpenter, 1857). [44]. Change genus from *Mopaliella*. Add synonyms; *Chiton bipunctatus* Sowerby (1st) in Broderip & Sowerby, 1832; *Tonicella (Mopaliella) stigmata* Dall, 1909. Extend range south to Peru (Ferreira, 1982b) and the Caribbean (Ferreira, 1985b). Not Caribbean (Kaas & Van Belle, 1985b).

55. ***Lepidochitona keepiana*** Berry, 1948. Synonyms: "*Lepidochitona dentiens* (Gould)" Berry, 1922 [not *Lepidochitona dentiens* (Gould, 1846)]; *Ischnochiton (Trachydermon) dentiens* (Gould) Pilsbry, 1892. Length to 16 mm. Range: Monterey, California, to Rancho Socorro, Baja California; Isla Socorro, Mexico. Depth: intertidal to 10 m (Ferreira, 1983b). Holotype figured (Hertz, 1984).

Subgenus *Dendrochiton* Berry, 1911

Lepidochitona (D.) laurae (Berry, 1963). [47]. *Dendrochiton* becomes subgenus (Van Belle, 1983). Holotype figured (Hertz, 1984). Delete. Becomes synonym of *L. lirulata*. See number 56.

56. *Lepidochitona (D.) lirulata* (Berry, 1963). [48]. *Dendrochiton* becomes subgenus (Van Belle, 1983). Add synonym: *Dendrochiton laurae* Berry, 1963. Range: northern Gulf of California to Bahía de los Angeles in Baja California and Guaymas, Sonora, on the mainland of Mexico. All intertidal (Ferreira, 1982b). Holotype figured (Hertz, 1984).

Genus *Nuttallina* (Carpenter MS) Dall, 1871

57. ***Nuttallina californica*** (Nuttall MS, Reeve, 1847). Synonyms: *Chiton scaber* Reeve, 1847 [not Blainville, 1825]; *Acanthopleura scabra* (Reeve) Carpenter, 1864; *Acanthopleura fluxa* Carpenter, 1864 [nom. nud.]. Length to 53 mm. Range: Sonoma County, California to Bahía Magdalena, Baja California Sur,

Mexico, in the upper and middle intertidal zone (Ferreira, 1982b). Delete *Acanthopleura scabra* (Reeve) Carpenter, 1864, as a synonym (Kaas & Van Belle, 1985b).

58. *Nuttallina crossata* Berry, 1956. [45]. Add synonym *Nuttallina mexicana* Pilsbry in Pilsbry & Lowe, 1932 (nom. nud.). Extend range southward to Puerto Ballandra, Baja California Sur, Mexico (Ferreira, 1982b). Holotype figured (Hertz, 1984).

Family MOPALIIDAE Dall,1889
Subfamily MOPALIINAE Dall, 1889
Genus *Placiphorella* (Carpenter MS) Dall, 1879

59. *Placiphorella blainvillii* (Broderip, 1832). [49]. Extend range north to Cocos Island, Costa Rica, and depth to 120 m. Presence in deep water off the Galápagos Islands not reconfirmed since first published (Smith & Ferreira, 1977).

60. ***Placiphorella pacifica*** Berry, 1919. Synonym: *Placiphorella ushakovi* Yakovleva, 1952. Length to 33 mm. Range: Okhotsk Sea, Pacific Northwest, and off Guaymas, Sonora, Mexico. Depth: 366 to 878 m (Smith, 1974).

61. *Placiphorella velata* (Carpenter MS) Dall, 1879. [50].

Family CHITONIDAE Rafinesque, 1815
Subfamily CHITONINAE Rafinesque, 1815
Genus *Chiton* Linnaeus, 1758
Subgenus *Chiton s.s.*

62. *Chiton (C.) stokesii* Broderip, 1832. [5]. Add synonyms: *Chiton interruptus* (Carpenter MS) Pilsbry, 1893 [nom. nud.]; *Chiton stokesi broderipi* Clessin, 1903; *Chiton latus* Boone, 1933, [not Sowerby, 1825] (Kaas & Van Belle, 1980). Add Cocos Island, Costa Rica, to range (Ferreira, 1987). Range: Guatemala to Ecuador. Not found in Mexico (Bullock, 1988).

63. *Chiton (C.) sulcatus* Wood, 1815. [6]. Add synonym *Chiton woodii* Clessin, 1903 (Kaas & Van Belle, 1980). Add subgenus (Bullock, 1988).

64. *Chiton (C) virgulatus* Sowerby, 1840. [7]. Add synonym *?Chiton (Radsia) caerulescens* Shuttleworth, 1853 [nom. nud.] (Kaas & Van Belle, 1980). Add subgenus. Add Bahía Magdalena, Baja California Sur, to range (Bullock, 1988).

Subgenus ***Amaurochiton*** Thiele, 1893

65. ***Chiton (A.) cumingsii*** Frembly, 1827. Add subgenus. Length 45 mm. Range: Tumbes, Peru, to Calbuco, Chile, intertidal (Bullock, 1988).

Subgenus ***Diochiton*** Thiele, 1893

66. *Chiton (D.) albolineatus* Broderip & Sowerby, 1829. [2]. Add subgenus. Extend range northward to Guaymas, Sonora, Mexico, and southward to Guatemala (Bullock, 1988).

67. *Chiton (D.) articulatus* Sowerby, 1832. [3]. Range: Mazatlán, Sinaloa, to Puerto Angel, Oaxaca, Mexico (Ferreira, 1983b). Add subgenus. Synonym: *Chiton similis* [Gray MS]. Range: Mazatlán to Puerto Guatulco, Oaxaca, Mexico (Bullock, 1988).

68. *Chiton (D.) goodallii* Broderip, 1832. [4]. Intertidal. (Smith & Ferreira, 1977). Add synonym: *Chiton (Radsia) chierchiae* Nierstrasz, 1906 (Kaas & Van Belle, 1980). Not found at Cocos Island (Ferreira, 1987). Add subgenus (Bullock, 1988).

Subgenus ***Chondroplax*** Thiele, 1893

69. ***Chiton (C.) granosus*** Frembly, 1827. Add subgenus. Length to 75 mm. Range: Tumbes, Peru, to Isla de Chiloe, Chile, intertidal (Bullock, 1988).

Subfamily TONICIINAE Pilsbry, 1893
Genus *Tonicia* Gray, 1847

70. *Tonicia forbesii* Carpenter, 1857. [9].

71. *Tonicia forbesii arnheimi* Dall, 1903. [8]. *T. arnheimi* becomes a subspecies. Low intertidal to deeper water. Figured (Smith & Ferreira, 1977).

Suborder ACANTHOCHITONIA Bergenhayn, 1930
Family ACANTHOCHITONIDAE Pilsbry, 1893
Subfamily ACANTHOCHITONINAE Pilsbry, 1893
Genus *Acanthochitona* Gray, 1821

72. ***Acanthochitona angelica*** Dall, 1919. Holotype fig. 4. Synonym: *A. jacquelinae* A.G. Smith & Ferreira, 1977. Range: Bahía de los Angeles, Baja California and Islas Tres Marias, Mexico; Isla Santa Cruz, Galápagos Islands, Ecuador, 40 to 50 m (Watters, 1981).

73. *Acanthochitona arragonites* (Carpenter, 1857). [10]. Extend range to Salinas, Ecuador. Recognized by "D"-shaped pustules. All other Panamic province *Acanthochitona* have tear-drop-shaped or oval pustules. *A. andersoni* Watters, 1981 is a cognate species from the western Pacific (Watters, 1981).

74. *Acanthochitona avicula* (Carpenter, 1864). [11]. Possible new species from Galápagos Islands, Ecuador reported as "*CF avicula*" (Smith & Ferreira, 1977). Remove *?A. angelica* Dall, 1919 as a synonym. Lectotype designated for *A. avicula var. diegoensis* (Pilsbry, 1893). Delete "*CF avicula*" (Smith & Ferreira, 1977) (Watters, 1981).

75. *Acanthochitona exquisita* (Pilsbry, 1893). [12].

76. ***Acanthochitona ferreirai*** Lyons, 1988. [14]. Synonym: *Acanthochitona rhodea* Thorpe in Keen, 1971 [pars] [not *A. rhodea* (Pilsbry, 1893)]. Length 28.2 mm. Range: Costa Rica and Panama, intertidal and subtidal (Lyons, 1988).

77. *Acanthochitona hirudiniformis* (Sowerby, 1832). [13]. Add synonym: *A. panamensis* Pilsbry, 1932 (Kaas & Van Belle, 1980). Add Galápagos Islands, Ecuador, to range (Smith & Ferreira, 1977). Watters (1981) uses *A. hirudiniformis hirudiniformis* (Sowerby, 1832) with synonyms *A. coquimboensis* (Leloup, 1941) and *A. tabogensis* A. G. Smith, 1961. *A. hirudiniformis peruviana* (Leloup, 1941) is considered to be a separate subspecies (Watters, 1981).

78. ***Acanthochitona imperatrix*** Watters, 1981. Synonyms: *Acanthochitona species?* A.G. Smith & Ferreria, 1977; *A. galapagana* (Pilsbry MS). Length 8.9 mm. Range: southern California to the Galápagos Islands. Depth: 14.6 to 17.4 m (Watters, 1981).

Acanthochitona jacquelinae A.G. Smith & Ferreira, 1971. Length 10 mm. Isla Santa Cruz, Galápagos Islands, Ecuador, 40 to 50 m (Smith & Ferreira, 1977). Delete. Becomes a synonym of *A. angelica* Dall (Watters, 1981). See number 72.

Acanthochitona rhodea (Pilsbry, 1893). [14]. Add synonym: *Acanthochites (Notoplax) hemphilli* Pilsbry, 1893. Extend range north to Guaymas, Sonora, Mexico, and the Caribbean (Ferreira, 1985b). *A. rhodea* becomes a synonym of *A. hemphilli* (Pilsbry) (Watters, 1981). Delete as a Panamic province species. Both *A. rhodea* and *A. hemphilli* are confined to the Caribbean coasts of Costa Rica, Panama, and Colombia (Lyons, 1988).

79. ***Acanthochitona shaskyi*** Ferreira, 1987. Length 6 mm. Chatham Bay, Cocos Island, Costa Rica, in 46 to 69 m. Known only from the type lot (Ferreira, 1987).

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Currently recognized Panamic province species are listed in **bold** type

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MEMBERSHIP AND SUBSCRIPTION

Annual dues are payable to San Diego Shell Club. Single member: $10.00; Family membership: $12.00; Overseas (surface mail): $12.00; Overseas (air mail): $25.00. Address all correspondence to the San Diego Shell Club, Inc., c/o 3883 Mt. Blackburn Ave., San Diego, CA 92111

Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

PROGRAM

SHELLING AND DIVING IN THE PHILIPPINES

Dave Mulliner, award winning underwater photographer and THE FESTIVUS staff photographer, will present a program on his trip with slides both topside and underwater. He will also bring a display of Philippine material.

SHELLS OF ORCHARD ROCK

Club member Jeremy Hutsell will give a short presentation on collecting in the Orchard Rock area of Puget Sound, Washington. He will bring a display of the shells he collected.

Pictures from the Shell Bazaar and the September Party will also be shown.

Meeting date: October 19, 1989

CONTENTS

CLUB NEWS

THE MEXICAN FIESTA - SEPTEMBER 16, 1989

The concheros and concheritas of the San Diego Shell Club savored the atmosphere of Old Mexico as the annual September party - this year a Mexican Fiesta complete with dinner - got underway at the Del Mar home of Toni and Larry Buck. Club members weren't about to miss this big event of the year.

Earl Flores brought the charm of Mexico and the warmth of the Old West with his talented voice and guitar. Members enjoyed his live music as they dined on authentic Mexican dishes; everything from enchiladas to zesty South-of-the-Border style salads.

We thank Toni and Larry for again hosting the September party and for the warm welcome into their home.

Wayne Reed

SAN DIEGO SHELL CLUB PINS

For the first time the San Diego Shell Olub has a Club pin. The handsome pin has the Club's name and logo, the Festive Murex shell, *Pteropurpura festiva*. The pins are available for sale at $3.00 each with an additional $.50 for postage when necessary.

Please send requests directly to Margaret Mulliner, Treas., 5283 Vickie Drive, San Diego, CA 92109 or phone (619) 488-2701.

THE ANNUAL CLUB CHRISTMAS PARTY

Saturday evening December 2nd the Club will hold its annual Christmas dinner party at the San Diego Room of the Admiral Kidd Club. Further information will be provided at the October meeting and a map to the Club will be included in the November issue of THE FESTIVUS (since there is no December issue).

So--mark your calendars now and plan to attend.

SHELL FAMILY OF THE MONTH

The shells of the month are in the family Naticidae. Bring your moon snails--*Polinices, Natica, Sinum, Eunaticina* etc. for display at the October meeting.

MINI AUCTION OF BOOKS

At the October meeting there will be, once again, a mini-auction of books. Three books will be "on the block." They are as follows:

THE LIVING VOLUTES by Weaver and Dupont
SHELLS OF NEW GUINEA AND CENTRAL INDO PACIFIC by Hinton
SEA SHELLS OF TROPICAL WEST AMERICA (2nd edition) by Keen

Come to the meeting and have an opportunity to acquire one of these fine books.

PLESARIONTA STEARNSIANA AND HELMINTHOGLYPTA TUDICULATA, TWO NATIVE CALIFORNIA SPECIES

CAROLE M. HERTZ

Associate, Department of Malacology, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, California 90007

Two more San Diego County land snails have been collected by Richard Cerutti of the Paleontology Department of the San Diego Natural History Museum.

Plesarionta stearnsiana (Gabb, 1867) (Figure 1) was found living on the ground beside Telegraph Canyon Road in Chula Vista, California, in January of last year. Richard Cerutti said they are "real common on the coastal mesas in Chula Vista."

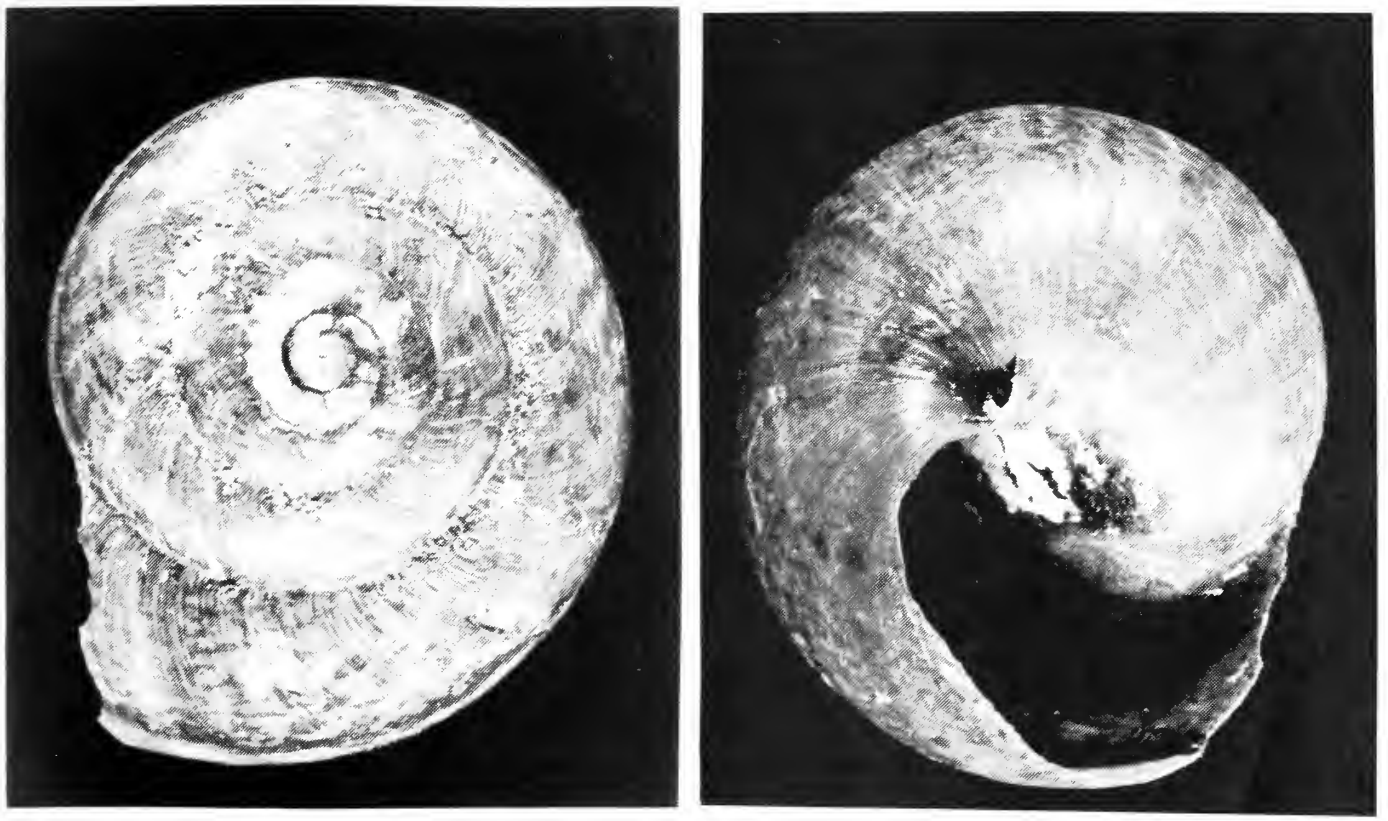


Figure 1. *Plesarionta stearnsiana* (Gabb, 1867). (SDNHM 93400). 19.3 mm max. diam. Leg. R. Cerutti, January 21, 1988. Location: Telegraph Canyon Road, Chula Vista, CA
Photos: David K. Mulliner

Helminthoglypta tudiculata (Binney, 1843) (Figure 2) was collected by Richard in numerous locations in the county: Bonita; Black Mountain Road, Mira Mesa; Stelzer County Park, Lakeside; and Oceanside. The figured specimen was found in Oceanside living under a log on the north side of the San Luis Rey River near Camp Pendleton.

According to Dr. Barry Roth, who identified the two species, both "are natives and well-known from San Diego County."

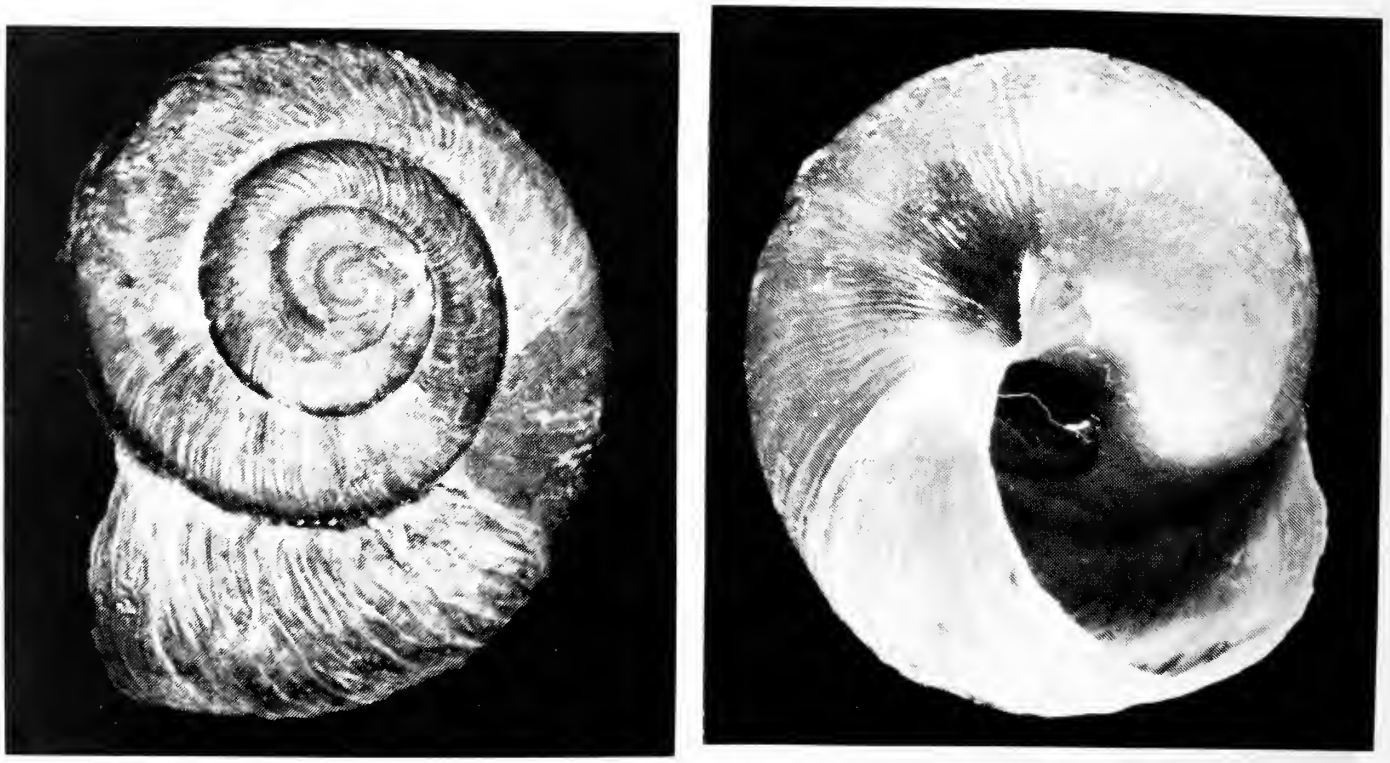


Figure 2. *Helminthoglypta tudiculata* (Binney, 1843). (SDNHM 93399). 25.2 mm max. diam. Leg. R. Cerutti, March 15, 1988. Location: north side of San Luis Rey River near Camp Pendleton, CA. Photos: David K. Mulliner

ACKNOWLEDGMENTS

Richard Cerutti brought the specimens of the two species to my attention, Barry Roth provided the identifications and David K. Mulliner took the photographs.

CORRECTIONS: In Larry Buck's March 1989 article, "A Trip to Puerto Escondido" [Festivus XXI(3):26-27] a species listed from that area as *Oliva kaleontina* Duclos, 1835, is actually *O. spicata* Röding, 1798, and the identification of a dead collected *Cypraea robertsi* (Hidalgo, 1906) is doubtful since the shell is very worn.

In a June 1984 paper by Jules and Carole Hertz entitled "Collecting in La Paz" [Festivus XVI(6):66-70] the species listed as *Coralliophila nux* (Reeve, 1846) is actually *Coralliophila parva* (E.A. Smith, 1877).

The authors of the two papers are indebted to Carol Skoglund for the correct identifications of the species.

BOOK NEWS

COMMON AND SCIENTIFIC NAMES OF AQUATIC INVERTEBRATES FROM THE UNITED STATES AND CANADA: MOLLUSKS.
By: Turgeon, D.D., A.E. Bogan, E.V. Coan, W.K. Emerson, W.G. Lyons, W.L. Pratt, C.F.E. Roper, A. Scheltema, F.G. Thompson, and J.D. Williams
1988. American Fisheries Society Special Publication 16. vii + 277 pp., 12 color pages.
Price: $30 clothbound and $24 paperbound

Within the past year students of malacology have benefitted by the publication of two taxonomic surveys which are essential additions to any reference library. The first of these is Kay Vaught's Classification of the Living Mollusca (reviewed in FESTIVUS 21(4):29), a categorization of the entire phylum to the generic level. The second contribution is a compilation of the common and scientific names of the mollusks from the United States and Canada (excluding Hawaii).

The result of a collaboration between the American Fisheries Society and the American Malacological Union, this is the first volume in a series on the North American invertebrate fauna, a similar volume on decapod crustaceans is due shortly. The many contributors to this work have attempted, by consensus, to standardize the use of common or vernacular names of mollusks, which are arranged according to their scientific counterparts in a phylogenetic checklist. The importance of establishing this systematic consistency is discussed by the authors who observe that "uniform vernacular names of mollusks are needed not only for commercial shellfish, but for amateur collectors and the industrial trade, for aquarium specimens, for the import or export trade of mollusks or molluscan products, for legal documents, for govermental listing or threatened and endangered species, for shell crafts and for popular or scientific writing."

About 5,700 species are included in the survey. Technically, this work is very well organized with an alphabetical and phylogenetic family list as a preface, the main checklist of species, and a comprehensive index. As window dressing, a 12-page "Portfolio of Mollusk Diversity" follows the index. The checklist is useful not only for the common names provided but also for the author/date citations after the taxa, a feature lacking in some of the popular works used at present. Not all the species listed have common names, for some taxa are either poorly known, rarely encountered, or minuscule.

This is an evolving document, subject to many future revisions. Readers are encouraged to respond with comments and to participate in the updating process. An updated edition is due in five years. This work did not intend to impose scientific names, but even the choice of some of the higher taxa (family or generic names) for phylogenetic purposes could be questioned. In any event, the potential of systematic disputes is a perfectly normal by-product of comprehensive surveys and does not detract from this work's value.

On a lighter note, vernacular names are an interesting resource in their own right because they not only describe obvious aspects of an organism but reflect the social heritage of various regions in the country. The book is an entertaining source of molluscan trivia. While some of the names are the obvious ones we all learned initially, others are quite bizarre, especially when taken out of context (or out of region). Anthropomorphic names abound, like the "bull roarer cyphoma", "greedy dovesnail" or "rude barrel bubble". Names can make their subjects sound quite formidable, like the "clawed armhook squid" or "warty jumping-slug". Others can be mysteriously ambiguous. Ever hear of the "threehorn wartyback" or the "fat pocketbook"? (Hint: they are in the same family as a "fatmucket", a "turgid blossom" or a "Texas pigtoe"). Imagine these in legal documents or the Congressional Record and one sees why taxonomy can even be fun.

Henry W. Chaney

NOTICE OF NEW PUBLICATION SOON TO BE RELEASED

Cowries and Their Relatives of Southern Africa A study of the southern African Cypraeacean and Velutinacean gastropod fauna
By William Rune Liltved. 1989.
208 pages, over 550 color photographs, 60 line illustrations, numerous black and white illustrations. Hardbound.
Price: $65.00 (standard edition; half-leatherbound edition (inscribed) $120.00 from Mal De Mer Enterprises, P.O. Box 482, West Hempstead, NY 11552.

"Although the primary objective of this study is to concentrate on the poorly known species endemic to South Africa, Angola and Mozambique, detailed accounts of many Indo-Pacific and West African species are also provided. Over one hundred species accounts appear in the book...Many of the taxa discussed have only recently been discovered and named, others being recorded for the first time in this biologically unique region of the world."

NEW PUBLICATIONS

Marine Gastropods from Curacao, Aruba and Bonaire
By K.M. de Jong and H.W. Coomans in cooperation with F. Verberne. 1989.
viii + 261 pages, 47 plates, maps. Cloth with dustjacket.
Price: $42.50 (from E.J. Brill, P.O. Box 9000, 2300 PA Leiden, The Netherlands)

"This book discusses 745 species of Recent marine Gastropoda (Prosobranchs, shelled Opisthobranchs and Pulmonates) collected on three islands of the Netherlands Antilles.... Special attention has been given to the small and lesser known gastropods, resulting in 58 species new to science.... Over 480 species are illustrated on 47 plates consisting of original drawings and photographs, SEM photographs, and figures from the literature. For the non-figured species reference is made to illustrations in modern handbooks on Caribbean mollusks."

North American Freshwater Snails
By J.B. Burch. 365 pages
Price: $30.00 plus $4.00 postage and handling.

"This is a reprinting (combining under one cover) of three issues of Walkerana, and reproduces (with some additional materials) the out-of-print EPA manual Freshwater Snails (Mollusca: Gastropods) of North America." The book "covers the nearly 500 species of North American (north of Mexico) freshwater snails, dealing with their classification, anatomy, identification, distribution etc."
Order from Malacological Publications, P.O. Box 4115, Ann Arbor, Michigan 48106.

SAN DIEGO SHELL CLUB MEMBERS DIVE SAN MIGUEL AND SANTA ROSA ISLANDS

LARRY BUCK

2534 Via Pisa, Del Mar, California 92014

This past August a group of eleven members of the San Diego Shell Club traveled to the nutrient-rich waters of San Miguel and Santa Rosa Islands off the California coast for a fantastic dive trip. We left Santa Barbara in the wee hours of the morning on board the luxurious (by dive boat standards) dive boat "Conception" for a day and a half's diving.

On the first day there were four daytime dives starting at 9:00 A.M. and a fifth, a night dive, after digesting a beautifully prepared filet mignon feast. Our food on board was delicious and always available. The excellent service by skipper and crew made our diving comfortable despite the 56° F water temperature. We all made use of the two hot showers on deck between dives. We were unable to dive some of the deeper, more taxing areas due to our skipper's apprehension over the ability of some of the other divers on board. I can't say I could question his judgment. On the second day we were able to dive off Santa Rosa Island just to the south of San Miguel, where the water temperature was 62° F.

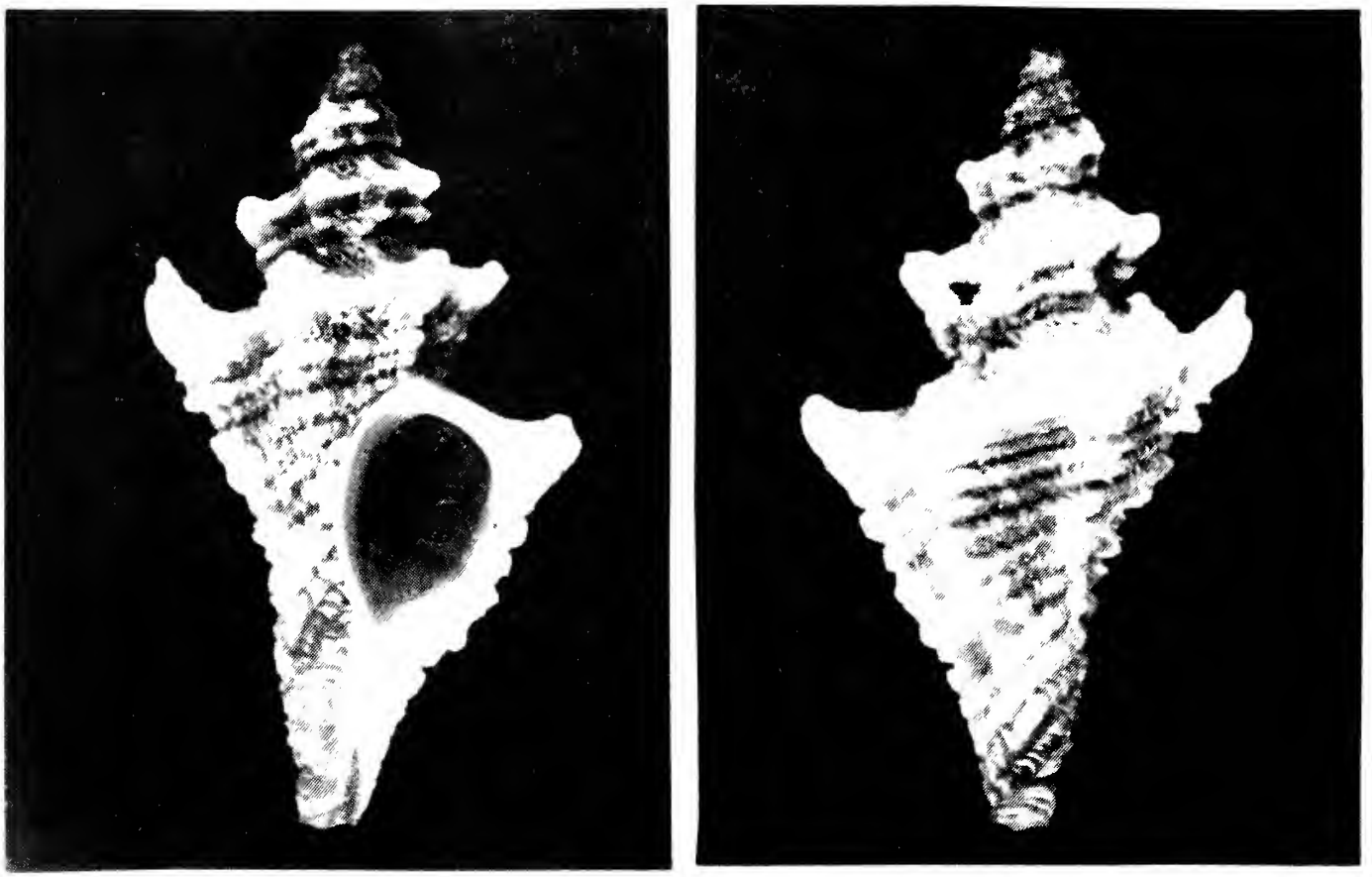
I was enthralled by the richness of the invertebrate life off San Miguel Island. The species' colors and sizes were like the colder-water forms I'd seen north of San Miguel Island in central and northern California waters and south in Baja California in the isolated area from Punta Bonda to Santo Tomas. San Miguel is similar to these areas in that the currents bring an upwelling of colder water to shore.

Some of the more noteworthy mollusks encountered during our dives were: *Ceratostoma foliata* (Gmelin, 1790) (with the most beautiful specimens from San Miguel's waters); *Pteropurpura macroptera* (Deshayes, 1839); *Maxwellia santarosana* (Dall, 1905); *Ocenebra barbarensis* (Gabb, 1865) (Figures 1 and 2); *O. foveolata* (Hinds, 1844) (Figures 3 to 6); *O. beta* (Dall, 1919); *Cypraea spadicea* Swainson, 1823; *Calliostoma gloriosum* Dall, 1871, and *C. ligatum* (Gould, 1849) on rocks; *C. canaliculatum* (Lightfoot, 1786) on kelp fronds (one specimen 34.8 mm, almost record size); along with very large (to 63.8 mm) *Norrisia norrisi* (Sowerby, 1838); very large *Mitra idae* Melvill, 1893; and the ever-present and very large *Astraea gibberosa* (Dillwyn, 1817); the large *Cryptochiton stelleri* (Middendorff, 1847); *Tegula regina* (Stearns, 1892); very large and clean *Kelletia kelletii* (Forbes, 1852); *Haliotis rufescens* Swainson, 1822, on which the *Ocenebra* species were found; *Crassadoma gigantea* (Gray, 1825); and the frilly bivalve *Irus lamellifer* (Conrad, 1837).

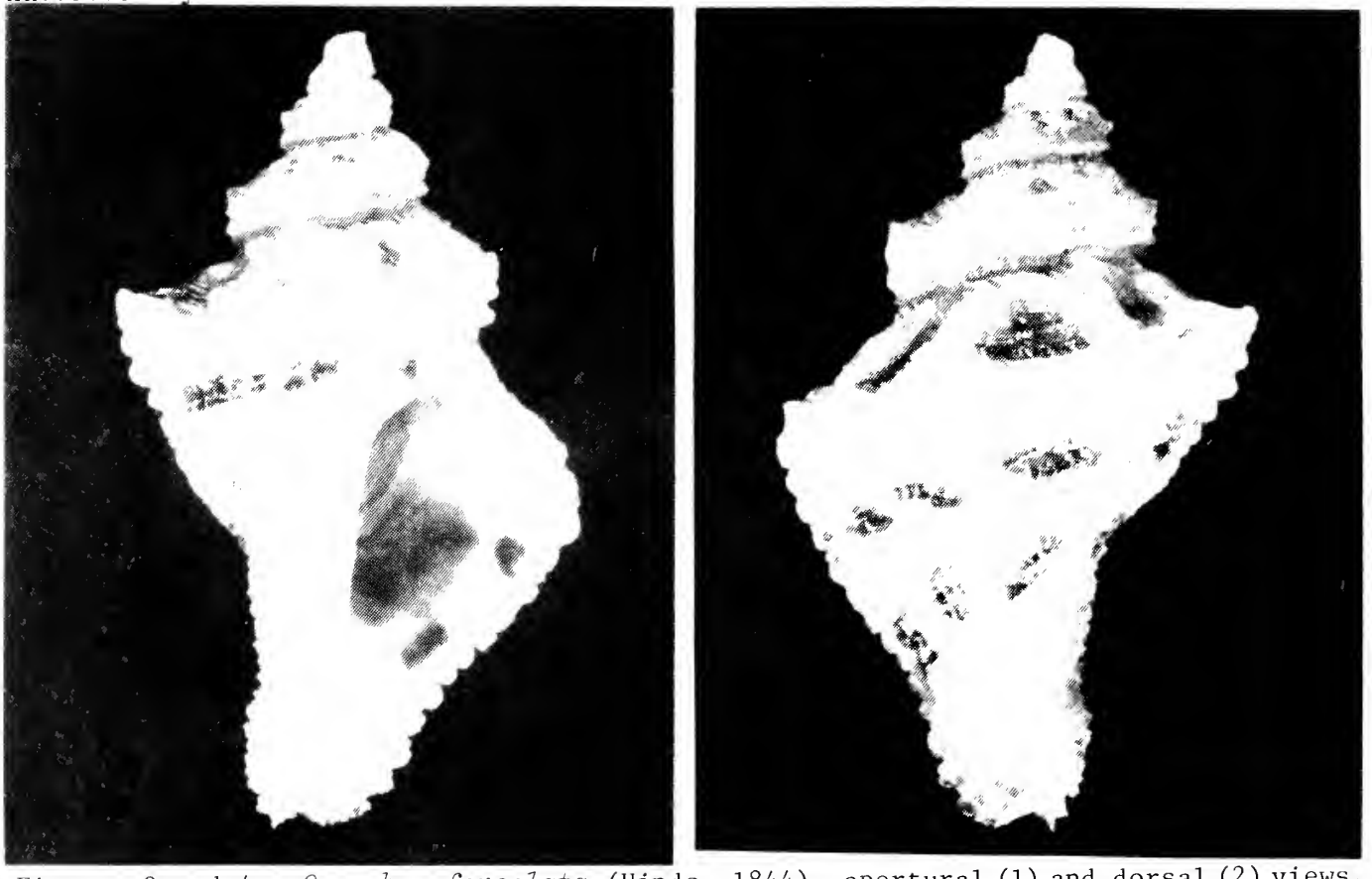
Several small dead *Haliotis assimilis* Dall, 1878, were also found. However, I think their habitat is deeper than the area in which we were diving. Some *Epitonium* species were found but are not yet identified.

Many of the *Cypraea spadicea* seen at north Santa Rosa Island showed signs of damage and had an almost white overglaze. And the large *Astraea gibberosa* found at San Miguel always had the spires eroded.

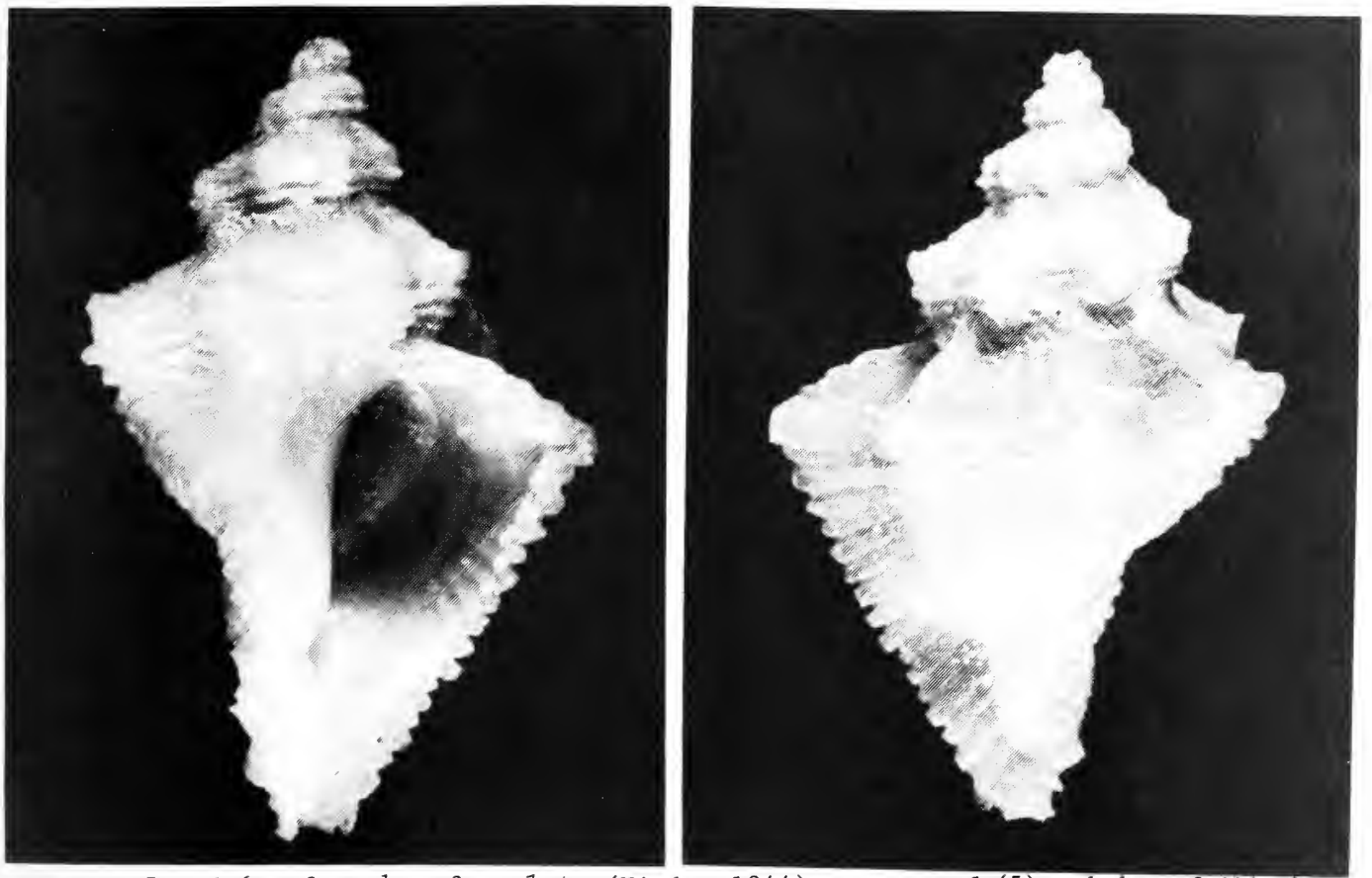
One of our chief objectives was the gastronomical treat *Haliotis rufescens* which were collected, much to our delight. I think it is important to stress that although we were able to take advantage of San Miguel's sizeable abalone population, it is in urgent need of protection from over-exploitation by sport and commercial divers. Soon the waters of San Miguel will be depleted of its abalone just as the rest of Southern California unless measures are taken to regulate the taking of abalone.



Figures 1 and 2. *Ocenebra barbarensis* (Gabb, 1865), apertural (1) and dorsal (2) views. Length: 13.1 mm. Leg. Larry Buck. Collected off San Miguel Is., CA in 13-14 meters on *Haliotis rufescens*. Photos: David K. Mulliner



Figures 3 and 4. *Ocenebra foveolata* (Hinds, 1844), apertural (1) and dorsal (2) views. Length 14.2 mm. Leg. Larry Buck. Collected at San Miguel Is., CA in 13-14 meters on *Haliotis rufescens*. Photos: David K. Mulliner



Figures 5 and 6. *Ocenebra foveolata* (Hinds, 1844), apertural (5) and dorsal (6) views. Length: 16.0 mm. Leg. Larry Buck. Collected at San Miguel Is., CA in 13-14 meters on *Haliotis rufescens*. Photos: David K. Mulliner

Soon after returning home, John Jackson, one of the divers on the trip, provided the group with an unexpected treat. Each one of us was given an excellently done video tape that he had made both topside and underwater during the trip.

Hopefully, the San Miguel Island dive trip will become an annual affair for our Club's divers, enabling them to continue to appreciate the beauty and richness of the waters of this nearby island.

My thanks go to Dave Mulliner for photographing the specimens illustrated here.

THE FESTIVUS
A publication of the San Diego Shell Club

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MEMBERSHIP AND SUBSCRIPTION
Annual dues are payable to San Diego Shell Club. Single member: $10.00; Family membership: $12.00; Overseas (surface mail): $12.00; Overseas (air mail): $25.00. Address all correspondence to the San Diego Shell Club, Inc., c/o 3883 Mt. Blackburn Ave., San Diego, CA 92111

Single copies of this issue: $5.00. Postage is additional.

Meeting date: third Thursday, 7:30 P.M., Room 104, Casa Del Prado, Balboa Park

The Festivus is published monthly except December. The publication date appears on the masthead above.

PROGRAM

BEETLES, BUTTERFLIES AND SEASHELLS OF COSTA RICA

This program with slides and displays will be a joint effort of Messrs. Ron McPeak, manager of marine biology at Kelco and coauthor of "The Amber Forest", Club president Larry Buck, Dr. David Leighton, director of Abalone Mariculture Enterprises and Dr. John Bishop.

Shell Family of the Month: Mitridae

Meeting date: November 16th

CONTENTS

CLUB NEWS

THE ANNUAL CHRISTMAS DINNER PARTY - DECEMBER 2, 1989

The Club's annual Christmas dinner party will be held in the San Diego Room of the Admiral Kidd Club on Saturday evening December 2nd. The festivities begin at 6:00 P.M. with no host cocktails. Dinner will be at 7:00 P.M.

The Chicken Kiev dinner served with wild rice and glazed carrots also includes dinner rolls, tossed green salad or coffee and tea. The Club will provide complimentary dinner wine. The cost for the evening including tax and gratuity is $12.00 per person. Deadline for reservations is November 25th. Checks should be made to the San Diego Shell Club and either sent to the Club address (front page) or given to treasurer Margaret Mulliner at the November meeting.

Remember to participate in the traditional shell gift exchange. Bring your gift-wrapped shell to place under the tree. On the outside place only general locale i.e. Caribbean, eastern Pacific. Numbers will be drawn and those bringing a shell gift will choose one from under the tree.

Master of Ceremonies Ron McPeak will install the officers for 1990 and follow by introducing the slide program "What was new this year?" Bring about 6 to 8 pertinent slides and be a part of the show.

The Christmas party is a time to welcome the season with your friends. Come and join the fun. Guests are welcome. For details and map see the last page of this issue.

DUES ARE DUE

This is the last issue of The Festivus for 1989 (no December issue) and time to announce that dues are due by January for the year 1990. The Club year has always been from January to December and with high printing and postage costs, the Club can no longer continue to send issues to any but paid-up members. Please send your dues to the Club address or pay to Margaret Mulliner, treasurer by the January meeting.

FROM THE MINUTES - SAN DIEGO SHELL CLUB MEETING - October 19, 1989

Our October 19th meeting was outstanding with Dave Mulliner in the spotlight. His slide show lecture was on his travels throughout the Philippines. Dave's gift as a narrator made us feel as if we were right there, examining tropical fruits ashore or adjusting our face masks as we splashed beneath quiet lagoons to marvel at exotic and colorful marine fauna. And we got a close look at the magnificent shell collection of Victor Dan.

Our second speaker, Jeremy Hutsell shared with us his shell collecting trip in Puget Sound and he brought some eye-catching specimens he'd gathered there. Jeremy's talk revealed some of the rewards of shell collecting in Washington's cold waters.

A mini book auction followed the talks and three fine volumes for the conchologist's bookshelf went home with lucky Club members.

After the refreshment break with cookies supplied by Ron McPeak and Kim and Don Avilez, Larry began the business meeting by announcing the slate of officers for 1990 as selected by the nominating committee. They are as follows:

President: Kim Hutsell
Vice President: David Mulliner
Treasurer: Margaret Mulliner
Recording Secretary: Wayne Reed
Corresponding Secretary: Rick Negus
Editor: Carole Hertz

Nominations from the floor will be entertained at the November meeting prior to the election of officers. The new officers will then be installed at the Christmas party.

The shell drawing was won by Margaret Mulliner.

Wayne Reed

NEW MEMBERS

Gardner, Sandra, 1755 University Ave., Palo Alto, CA 94301
Smith, Henry and Mary, 3042 Driscoll Dr., San Diego, CA 92117. 483-2627
Thomas, Charles and Vivian, 5253 Mt. Alifan Dr., San Diego, CA 92111. 277-4483

SCELIDOTOMA BELLA (GABB, 1865): A RANGE EXTENSION FOR THIS RARE SPECIES

KIM HUTSELL

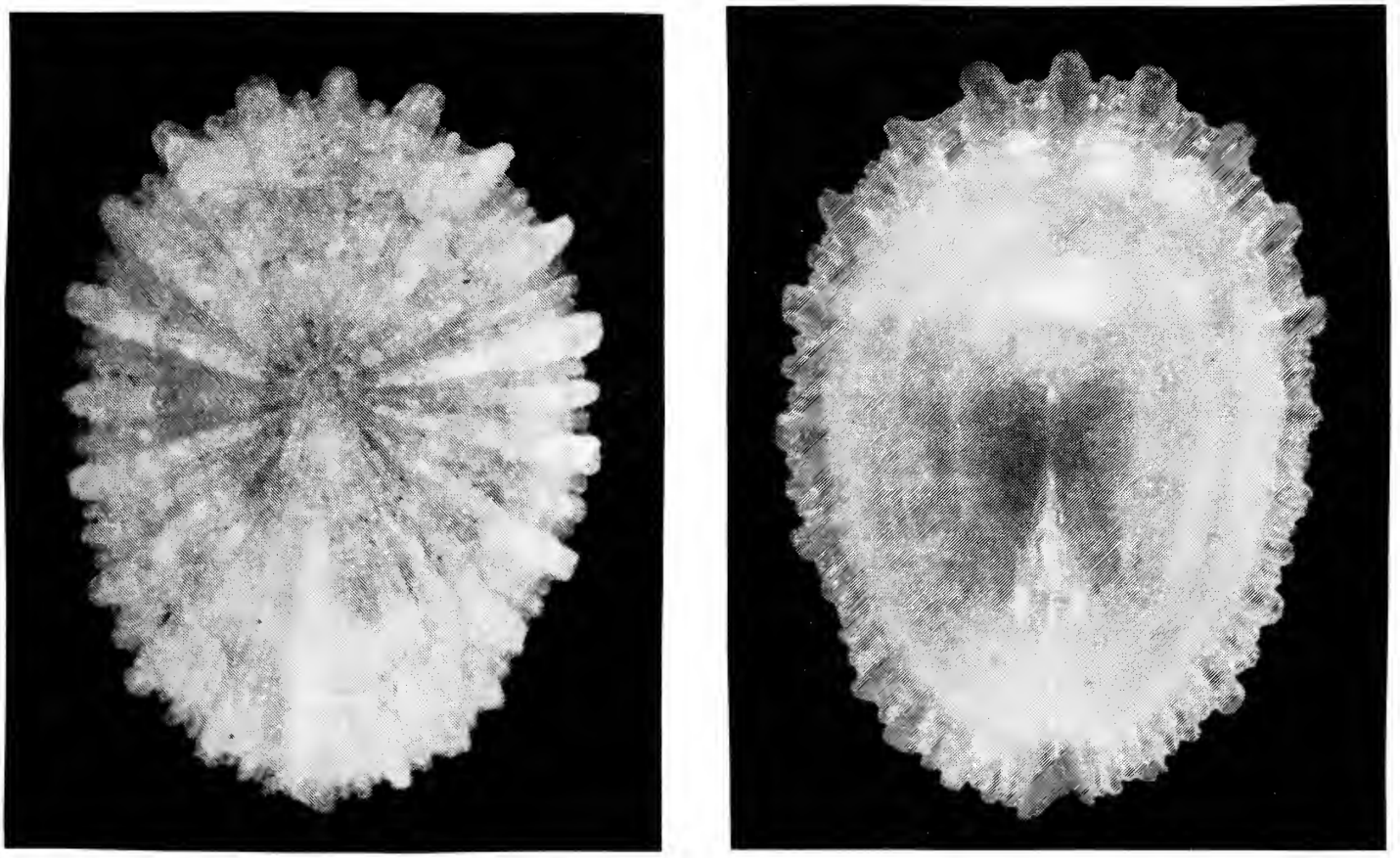
1154 12th Avenue, San Diego, California 92101

Undoubtedly, La Jolla is one of the most frequented dive sites in the San Diego area. But, since most diving activity takes place relatively close to shore, the marine life a mile or so offshore goes largely unobserved by divers.

On July 4th of this year, Mike Johnson and I decided to make a dive at a depth of between 100 and 110 feet about a mile and a half straight out from Casa Cove to see what was there. I was surprised to find a rather large population of *Astraea gibberosa* (Dillwyn, 1817) and *Pteropurpura vokesae* Emerson, 1964. Most of these specimens, however, were either heavily encrusted or badly eroded and not worth collecting. It was quite a contrast to the clean, perfect specimens we had observed at the same depth six miles to the south off Point Loma.

Just before our ascent, I spotted a large limpet-like animal clinging to the side of a rock. Uncertain of its identity, I collected the specimen and brought it to the surface for closer examination.

With assistance from Carole and Jules Hertz, the specimen collected off La Jolla was identified as *Scelidotoma bella* (Gabb, 1865) (Figures 1 and 2). McLean (1966)



Figures 1 and 2. *Scelidotoma bella* (Gabb, 1865), 36.1 x 26.2 x 12.8 mm. Leg. K. Hutsell, off La Jolla, California in 100-110 ft. on a rock, July 4, 1989. (1) exterior view (2) interior view. Photos: David K. Mulliner

proposed the genus *Scelidotoma* for the species formerly known as *Emarginula bella* Gabb. He illustrated a juvenile specimen (4.9 mm long.) from Carmel, California and the mature holotype (51 mm long.) of *Subemarginula yatesi* Dall, 1902, a synonym of *Scelidotoma bella,* from Monterey, California.

The specimen figured (Figures 1 and 2) is the first example of this rare species I have observed in eight years of diving along this coast. This immature shell measures 36.1 mm in length, 26.2 mm in width and approximately 12.8 mm in height.

The shell of *S. bella* is solid, translucent-white and highly sculptured with strong, well-defined ribs radiating from the apex. Between the stronger ribs there are three smaller ribs, one moderately strong rib flanked by weaker ones. The apex is situated slightly posterior of the center and curls toward the posterior. From the apex to the anterior end, there is a single rib much stronger than all the rest. This shows up as a channel or groove on the interior of the shell becoming very pronounced at the margin. None of the other ribs show on the interior until they reach the edge of the shell, giving it a crenulated appearance. The rest of the inner surface is smooth except for the muscle scar, which is slightly depressed.

The animal of *Scelidotoma bella* is a light, creamy yellow in color with black eyes on the end of the eyestalks and shows no other color or markings.

This specimen extends the reported southern range of *S. bella* from San Pedro (Abbott, 1974) to La Jolla, California. In a note from Dr. James H. McLean, he mentioned that specimens from Punta Banda and Cabo San Martin, Baja California, Mexico, are in the Malacology Collection of the Los Angeles County Museum of Natural History.

ACKNOWLEDGMENTS

I would like to thank Carole and Jules Hertz for locating the literature on this species and also Dave Mulliner for photographing the shell.

LITERATURE CITED

ABBOTT, R. TUCKER
1974. American Seashells. Van Nostrand Rheinhold. 663 pp., 24 pls., 6405 text figs.

MCLEAN, JAMES H.
1966. A new genus of Fissurellidae and a new name for a misunderstood species of West American *Diodora*. Nat. Hist. Mus. Los Angeles Cal., Contrib. in Sci., no. 100, pp. 2-8, figs. 1-4 (May 5).

BOOK NEWS

NOTICE OF NEW PUBLICATION SOON TO BE RELEASED

The Hawaiian Shell News is releasing its first supplement in January 1990. "Hawaiian Epitoniidae" by Helen DuShane will contain 20 pages covering 26 species in 12 genera, and 5 species first described in The Veliger (Vol. 31(3,4), October 1988). Forty-two photographs will make identification easy. The price has not yet been established but will be forthcoming shortly.

ANOTHER MINI BOOK AUCTION AT THE NOVEMBER CLUB MEETING

Following the program at the November meeting there will be a mini-auction of three books from the estate of Barbara Good. These books duplicate Club library holdings and the funds raised from their sale will go to library purchases. The titles of the books will be announced at the meeting.

A NOTE ON PTEROTYPHIS PINNATUS (BRODERIP, 1833)

ANTHONY D'ATTILIO* and CAROLE M. HERTZ**

*2415 29th Street, San Diego, California, 92104

**Associate, Department of Malacology, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, California 90007

Color photographs and information on three species of typhids were received by us in a letter from Mr. Peter Ryall of Austria. Two photographs of three shells which he labeled *Pterotyphis* sp. were of particular interest to us (Figures 1 and 2). They show three crabbed specimens of *Pterotyphis pinnatus* (Broderip, 1833) collected off the coast of West Africa: (a) the fragment, 5.9 mm from Sekondi Bay, Ghana, Feb. 12, 1988 (b) 11.1 mm, in 12 meters off Takoradi Harbour, Ghana, Jan. 17, 1986 (c) 7.0 mm in 15 meters off Busua Island, Ghana, Jan. 24, 1986. This extends the known distribution of this species across the entire Atlantic Ocean.

Pterotyphis pinnatus, type of the genus, was originally described without a type locality. This species has previously been reported (as *Pterotyphis fordi* Pilsbry, 1943), living in shallow intertidal waters in the Bahamas.

ACKNOWLEDGMENT

We are grateful to Mr. Ryall for making this information available to us.

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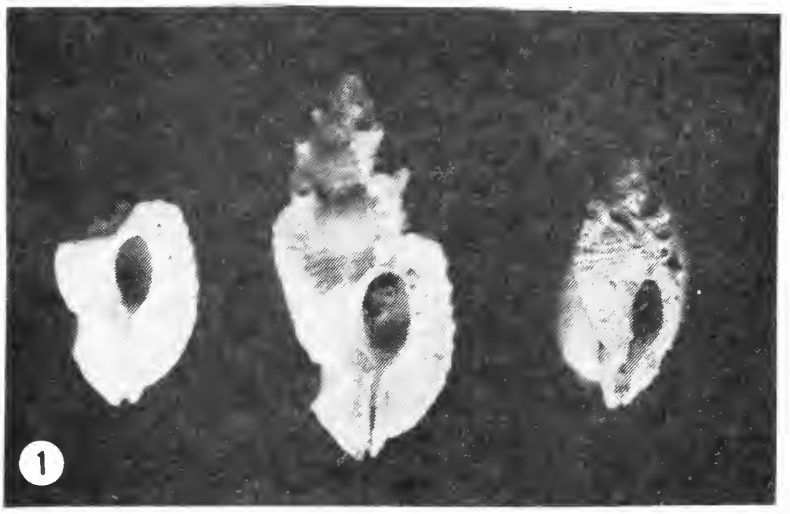
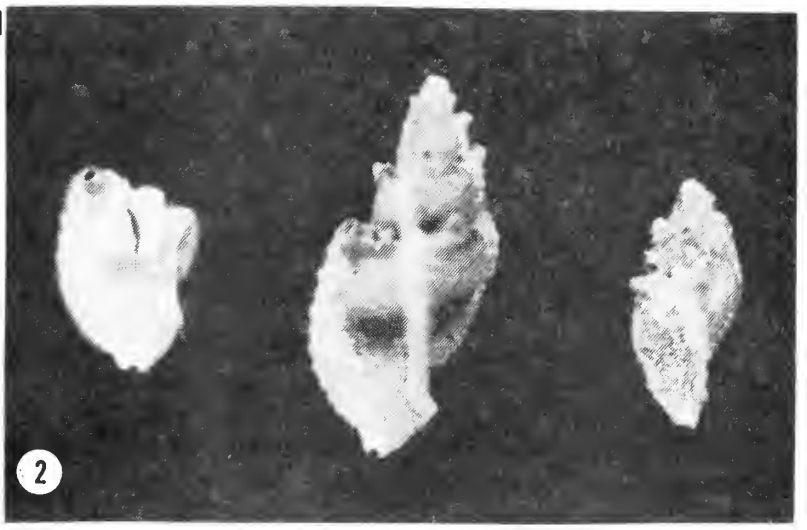
PILSBRY, HENRY A.
1943. A new Bahaman muricid mollusk. Nautilus 57(2):40, pl. 7, fig. 4.

BRODERIP, W.J.
1833. [in Broderip & G.B. Sowerby] Characters of new species of Mollusca and Conchifera collected by Mr. Cuming. Proc. Zool. Soc. London (1832) pp. 173-179. Figured: Sowerby (1841) Conch. Illus. pt. 200, figs. 10, 11.





Figures 1 and 2. *Pterotyphis pinnatus* (Broderip, 1833). (1) apertural views of three crabbed specimens from Ghana (2) dorsal views of specimens shown in Figure 1.

MITRELLA AURANTIACA FOUND INTERTIDALLY AT SOLANA BEACH, CALIFORNIA

CAROLE M. HERTZ

Associate, Department of Malacology, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, California 90007

On October 15, 1989 on a -1.2 foot low tide, I found two specimens of *Mitrella aurantiaca* (Dall, 1871) (Figures 1-3) living intertidally just above the lowest tide zone. They were on the underside of a large rock covered with worm tubes and overlaid with a tunicate (probably *Didemnum*). The two animals were on the tunicate. This was the first time I had seen this species intertidally. It is usually found subtidally (McLean, 1978).

The shell is pale yellow-brown covered by a crazy-quilt of spiral brown lines and just below the suture a row of white bars.

The animal has a cream-colored proboscis girdled by two black rings and has rows of white dashes along its length. The tentacles are also cream colored with black rings and the black eyes are at the base where the flesh becomes dark brown to black along the top of the head. The foot is cream with dark brown markings above and random dots of blackish-brown on the base. The operculum is corneous and a light amber color.

My appreciation to David Mulliner who kindly photographed the animals.

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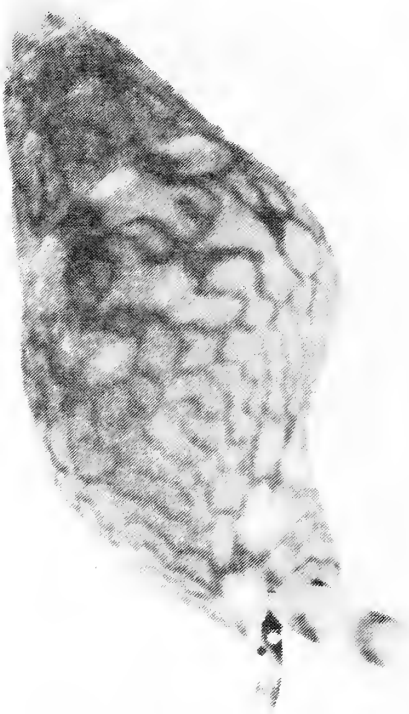
1978. Marine Shells of Southern California. Nat. Hist. Mus. Los Angeles Co., Sci. ser. 24, revised ed., 104 pp., 54 pls.



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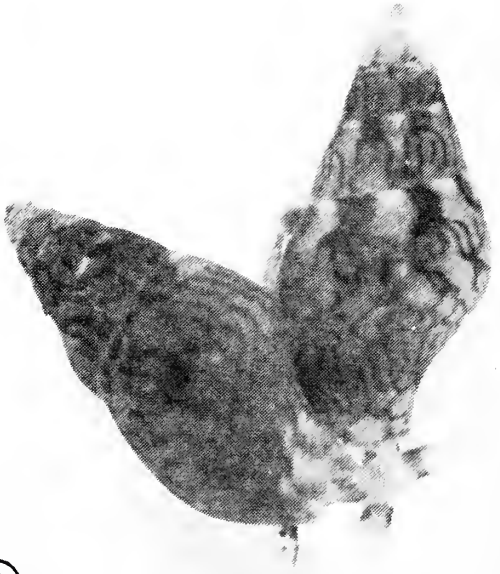

(2)

(3)

Figures 1-3. *Mitrella aurantiaca* (Dall, 1871). Two specimens, 4.9 and 4.8 mm in length. (1 and 3) 4.9 mm specimen (2) both specimens
Photos: David K. Mulliner

A SELECTED INDEX TO VOLUME XXI (1989)

SAN DIEGO SHELL CLUB
CHRISTMAS PARTY

December 2, 1989
BRONZE ROOM at the
ADMIRAL KIDD CLUB

Cocktails 6:00 P.M.
Dinner 7:00 P.M.